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NOTES ON SOME PLANTS COLLECTED IN THE CANADIAN EASTERN ARCTIC BY DR. POTTER IN 1937

Nicholas Polunin

From Dr. David Potter, Professor of Botany in Clark University, Worcester, Massachusetts, there recently came to me at the British Museum a parcel of vascular plants which he had collected in northernmost Labrador and southeastern Baffin Island during the MacMillan Expedition of 1937. Special attention had, at my request, been paid to certain of the "critical" groups, as well as to the collection of all available material of insignificant or ecologically restricted species. Moreover the expedition, although only a short "summer" one, visited some areas which have been little investigated botanically; while, finally, Dr. Potter had the great advantage of considerable previous experience in the North. Hence I had keen expectations with regard to his collection, especially in view of my forthcoming detailed flora of the Canadian Eastern Arctic, in whose southeastern corner all the plants which were sent to me had been gathered.

Nor was I at all disappointed; the specimens were numerous, widely representative and beautifully preserved, although unnamed. Even the very fact that the collection did not contain anything particularly startling or entirely new is gratifying, for it suggests that we have now at last a very fair general knowledge of the pteridophyte and spermatophyte flora of the region.

However, the following additions were made to the known flora—in two cases of the entire Canadian Eastern Arctic, in several other cases of Baffin Island and the rest of the Canadian Arctic Archipelago, and in the remaining instances of one or the other of the two major

districts (Northern Labrador and Southern Baffin) which were visited.[1]

Deschampsia alpina (L.) Roem. & Schult. S. Baffin: *Resolution Island* Acadia Harbour, nr. 8338. N. Labrador: Lady Job Harbour, nr. 8339; also Bowdoin Harbour, nr. 8347.

New to Baffin Island and to the entire Arctic Archipelago, the report from Akpatok Island[2] being founded on specimens belonging instead to the non-viviparous *D. caespitosa* series, I find on examining the material myself! *D. alpina* is predominantly a species of Europe, where it extends from Spitsbergen southwards, but it is also of rather general occurrence in southern Greenland. Elsewhere in America it is known only from this Resolution Island station and from northern Labrador, where it is almost confined to the Atlantic coast. Hence it would appear to afford a particularly good example of a species which is long established and widespread in Europe but has only just reached the nearest part of continental North America via Greenland.

Deschampsia caespitosa (L.) P. de Beauv. S. Baffin: *Frobisher Bay* Point Brewster, nr. 8320 in part, mixed with *Poa arctica* R. Br.

New to S. Baffin, although in Herb. Kew I have seen specimens collected in the central portions of this great island as long ago as 1860 and variously labelled "*Hierochloe pauciflora*," "*Poa laxa*," "*Dupontia*," etc. The species is also known from the south shore of Hudson Strait, where it occurs on Akpatok Island (see above) and in northern Labrador and Quebec. This material from the Canadian Eastern Arctic, while it appears all to belong to the great polymorphic circumboreal *D. caespitosa* series rather than to one of the recently proposed "western" segregates, *D. beringensis* Hultén or *D. Mackenzieana* Raup, nevertheless varies considerably in such characters as the length of the spikelets. However, all specimens that I have seen fall within the limits of one variety as outlined by Professor Fernald,[3] viz. var. littoralis (Reut.) Richter, Pl. Eur. I, p. 56, 1890.

Puccinellia Vahliana (Liebm.) Scribner & Merrill. S. Baffin: *Resolution Island* Acadia Harbour, nr. 8335.

[1] In these notes I have in general mentioned only those finds of Dr. Potter's which are real additions to the known flora, counting recent but unpublished discoveries as "knowledge" since they will shortly be dealt with in my detailed Flora of the Canadian Eastern Arctic. In four instances, however, it has seemed desirable to report the further range-extensions discovered by Dr. Potter in 1937 of plants already found elsewhere in Southern Baffin by the Canadian expedition of the previous year.

[2] By Polunin in *Journal of Botany* LXXII, p. 203, 1934.

[3] In Rhodora XXVIII, p. 153, 1926.

New to S. Baffin, although well known in N. Baffin and occurring plentifully still farther north on Devon and Ellesmere Islands. In the South it is largely if not entirely confined to calcareous areas, being common on Akpatok Island in Ungava Bay and Southampton Island in Hudson Bay. I also found it recently at Port Burwell in the extreme north of Labrador, growing on glacial till containing fragments of transported limestone. This, judging from Dr. Potter's general account (*in lit.*), would seem to have been its habitat at Acadia Harbour; for, unlike most other members of the genus, *P. Vahliana* is not at all a strand plant, being often found far inland and at high altitudes.

Carex microglochin Wahlenb. S. Baffin: *Frobisher Bay* Point Brewster, nr. 8293.

New to Baffin Island and the entire Arctic Archipelago. Previously collected in the Canadian Eastern Arctic proper, i.e. north of the 60th parallel, only at Chesterfield on the west coast of Hudson Bay (Keewatin) by me in 1936, at Ranken Inlet a little to the south of this by Macoun in 1910, and at Cape Smith on the east coast of Hudson Bay (Quebec) by me in 1936. Elsewhere very widespread in boreal regions but scarcely an arctic species, although reaching Cape Giesecke, 74° 30′ N. in East Greenland.[1]

Arenaria rubella (Wahlenb.) Sm., Engl. Bot. Suppl. I, t. 2638, 1831.

f. **epilis** (Fernald), n. comb. *Arenaria verna* L. var. *propinqua* (Richardson) Fernald f. *epilis* Fernald in Rhodora VIII, p. 32, 1906. S. Baffin: *Resolution Island* Acadia Harbour, nr. 8238.

The widespread arctic *Arenaria* (§ *Minuartia*) *rubella* is now by almost all authors maintained as a species separate from *A. verna* L.—a policy which I fully support. Hence it is necessary to make the above new combination for the glabrous phase which has not previously been recorded from the Canadian Eastern Arctic where it may, however, have been extensively overlooked.

Coptis groenlandica (Oeder) Fernald. S. Baffin: *Frobisher Bay* Point Brewster, nr. 8197.

The genus is new to Baffin and the Arctic Archipelago; also to the Canadian Eastern Arctic since it has not previously been found even as far north as the 60th parallel in Labrador, although extending much farther north in West Greenland.

[1] Cf. Gelting in *Meddelelser om Grønland* CI, 2, p. 165, 1934.

Draba crassifolia Graham. S. Baffin: *Frobisher Bay* Point Brewster, nr. 8257. N. Labrador: Lady Job Harbour, nr. 8245.

Not previously recorded from Baffin or any other part of the Arctic Archipelago but already found at Lake Harbour on the south coast of Baffin by me in 1936. North American, transgressing into northwestern Europe. Chiefly subarctic and alpine but reaching Lervig, 74° 11′ N. in East Greenland.[1] Well known in Labrador[2] and recently found at Wakeham Bay in northernmost Quebec (Polunin, 1936 field notes).

Potentilla Egedii Wormskj. in Fl. Dan. IX, t. 1578, 1818. S. Baffin: *Frobisher Bay* Point Brewster, nr. 8349.

Not previously recorded from Baffin or any other part of the Arctic Archipelago but already found at Lake Harbour on the south coast of Baffin by me in 1936. North American, transgressing into eastern Asia. Well known from the mainland regions of Labrador, Quebec and Keewatin even north of the 60th parallel, and thus widespread in the southernmost portions of the Canadian Eastern Arctic area. At Port Burwell in the extreme north of Labrador much of the material closely approaches the usual southern

var. **groenlandica** (Tratt.), n. comb. *Potentilla Anserina groenlandica* Tratt., Ros. Monogr. IV, p. 13, 1824; *P. Anserina* β. *grandis* Torrey & Gray; *P. pacifica* Howell; *Argentina pacifica* Rydberg.

Sibbaldia procumbens L. S. Baffin: *Frobisher Bay* Point Brewster, nr. 8046; also York Harbour, nr. 8045.

New to S. Baffin and probably to the whole of that great island—i.e. unless Taylor's report[3] of "Potentilla tridentata" from Cumberland Gulf had reference instead to *Sibbaldia*. This was unfortunately the case with my own report[4] of "*P. tridentata*" from Akpatok Island, the determinations having been made in my absence by others, and I suspect that it may also be true of Taylor's report (see my forthcoming Botany of the Canadian Eastern Arctic. Part I).

Euphrasia arctica Lange. S. Baffin: *Frobisher Bay* North of York Harbour, nr. 8029.

Previously reported from further north in Baffin[5] and also found at Lake Harbour on the south coast by me in 1936. The typical form is

[1] Cf. Gelting in *Meddelelser om Grønland* CI, 2, p. 73, 1934.
[2] Cf. Fernald in Rhodora XXXVI, p. 294, 1934.
[3] In *Trans. Bot. Soc. Edinburgh* VII, p. 327, 1863.
[4] In *Journal of Botany* LXXII, p. 204, 1934.
[5] By Taylor in *Trans. Bot. Soc. Edinburgh* VII, p. 330, 1863, sub nom. *Euphrasia officinalis*.

said by Fernald & Wiegand[1] to be "5–25 cm. high." To it belongs most of the material from south of the 60th parallel in eastern Canada and also from much further north in Greenland, both on the west coast and the east.[2] However, all the specimens that I have seen from the Canadian Eastern Arctic, including those from 6 stations in northernmost Labrador and Quebec, are so much smaller as to suggest that with further observation they may well prove to be varietally separable.

PLANTAGO JUNCOIDES Lam. var. GLAUCA (Hornem.) Fernald. S. BAFFIN: *Frobisher Bay* Point Brewster, nr. 8075.

The genus is new to Baffin, but not to the Arctic Archipelago, since it was found on Nottingham Island, Hudson Bay, by Dr. Robert Bell in 1884—as reported by Macoun,[3] although this was ignored by Simmons[4] and other subsequent writers. Bell's specimens, which I have seen in Herb. Ottawa, and Dr. Potter's, all belong to the usual reduced northern var. *glauca*. The occurrence of this in Frobisher Bay and on Nottingham Island, *i.e.* near both ends of Hudson Straits, indicates a likely migration route around seashores in modern times and, with a similar northern occurrence of *Carex Mackenzici* Krecz. (*C. norvegica* Willd., non Retz.), *C. maritima* Gunn. (*C. incurva* Lightf.), "*C. glareosa*" and *Zostera marina* L., seems to discount somewhat Dr. Potter's own "Botanical evidence for a Post-Pleistocene marine connection between Hudson Bay and the St. Lawrence basin."[5]

TARAXACUM CERATOPHORUM (Ledeb.) DC. S. BAFFIN: *Frobisher Bay* Point Brewster, nrs. 8161, 8163.

According to the limits given by Professor Fernald in his admirable revision of "Taraxacum in Eastern America,"[6] it would appear that all previous reports of this species from the Canadian Eastern Arctic should be transferred to *T. lacerum* Greene. Nor was I able to find any specimens of *T. ceratophorum* during my expeditions into these regions in 1931 and 1934, except on one occasion at Churchill on the west coast of Hudson Bay, well to the south of the 60th parallel. But

[1] In RHODORA XVII, p. 193, 1915; cf. also *Flora Danica* XVII, t. 2910, 1877.

[2] Cf. Gelting in *Meddelelser om Grønland* CI, 2, p. 155, 1934. sub nom. *Euphasia latifolia* Pursh.

[3] In his Catalogue of Canadian Plants. Part III, *Apetalae* p. 575, 1886, sub nom. *Plantago maritima*.

[4] "A Survey of the phytogeography of the Arctic American Archipelago" *Lunds Universitets Årsskrift*, 1913.

[5] Cf. Potter in RHODORA XXXIV, 1932—especially the map on p. 75.

[6] See Fernald in RHODORA XXXV, 1933.

in 1936, both at Cape Dorset in southern Baffin and Cape Smith on the east coast of Hudson Bay, I found specimens whose short leaves and much-hubbled fruits allowed me tentatively to refer them to *T. ceratophorum,* while in 1937 Dr. Potter gave special attention to the matter and found almost typical plants in Frobisher Bay.

In conclusion I wish to thank Dr. David Potter most sincerely for his great kindness in collecting and sending me this very interesting material.

Herbarium, Department of Botany,
Oxford University, England.

Wolffia columbiana in Concord, Massachusetts.—Shortly after the mid-summer flood of 1938 had subsided, I found *Wolffia columbiana* Karst. growing abundantly in warm, shallow water in the Great Meadows at Concord, Massachusetts. Material collected in August, 1938, has been filed in the herbarium of the New England Botanical Club.

A large acreage in the meadows has been dyked in order to create a series of shallow brook-fed ponds as a refuge for water-fowl. Much of the water is seepage from the Concord filter-beds. During the spring freshets, the water level is above the crest of the dykes and the entire meadows are flooded for miles in either direction. The Wolffia was abundant along one of the dykes on the leeward (easterly) side of the largest basin. The heavy rains just prior to the hurricane on Sept. 21, 1938—about 10½ inches fell in Concord between Sept. 17 and 21—again raised the river to freshet height. On Sept. 20, the dyke was awash and much of the Wolffia had floated down stream. The river continued to rise, and the plant apparently was entirely dispersed. On October 30, the water had fallen to nearly normal levels, but the Wolffia was more abundant than when first discovered!

From the best information available, this is the sixth station for this plant to be discovered in New England, and the first east of the Connecticut River. Previously, it appears to have been known only from Kent, Salisbury and Litchfield, in Connecticut, from Lake Champlain, and from Mt. Tom Station, Holyoke, Massachusetts.

Curiously enough, this is the second important range extension of rare and local members of the *Lemnaceae* to have been reported from the Sudbury-Concord River valley within the past twelve months.

Dr. Charles H. Blake reported the collection of *Wolffiella floridana* (J. D. Sm.) Thompson from Farrer's Pond, Lincoln, on August 11, 1937.—R. J. Eaton, Cambridge, Mass.

MONOGRAPHIC STUDIES IN THE GENUS ELEOCHARIS—V

H. K. Svenson

(*Continued from page 19*)

Series 4: Ovatae

38. E. obtusa (Willd.) Schultes [pl. 540, figs. 1, 6, 7; map 43]; Svenson, Rhodora xxxi. 214 (1929).—Noteworthy citations: Florida: in swamp, Welton Co., *Curtiss* in 1885 (NY); Tallahassee, *N. K. Berg* (NY). Texas: Uvalde, *Plank* in 1891 (NY); Houston, *Plank* in 1891 (NY). New Mexico: Las Vegas, *Plank* in 1895 (NY).

39. E. ovata (Roth) R. & S. [pl. 540, fig. 4; map 44]; Svenson, Rhodora xxxi. 211 (1929). *E. diandra* C. Wright, Bull. Torr. Club. x. 101 (1883) [pl. 540, fig. 3]; Svenson, Rhodora xxxi. 210 (1929).

Wright, apparently not knowing true *E. ovata* as represented in America, compared his plants from the sand-bars of the Connecticut River only with *E. obtusa*. In my opinion, *E. diandra* represents a form of *E. ovata* in which the bristles are rudimentary or lacking. Such a variation, usually of little significance in *Eleocharis*, is found in *E. ovata* in several river valleys. But specimens from the Hudson estuary usually have bristles, and except for the pallid spikelets are indistinguishable from typical *E. ovata*.

40. E. Engelmanni Steud. [pl. 540, fig. 2; map 45]; Svenson, Rhodora xxxi. 208 (1929).—Additional citations: West Virginia: Minnehaha Springs, Pocahontas Co., *Core* in 1931 (W Va Univ). Texas: Dallas, *Reverchon* no. 3596 (NY).

41. E. lanceolata Fernald [pl. 540, fig. 5]; Svenson, Rhodora xxxi. 207 (1929).

Series 5: Maculosae[1]

42. E. maculosa Vahl [map 25]; Svenson, Rhodora xxxi. 238 (1929). *E. Lehmanniana* Boeckl. in Engler, Bot. Jahrb. viii. 205 (1887).—Central America, West Indies and South America. Additional citations: Guatemala: Coban, 1350 m., *Tuerckheim* no. 1252 (NY). Guadaloupe: *Richard* (type, Cop); *Duss* nos. 3125 (NY), 3595 (NY). Martinique: *Duss* nos. 4137 (NY), 4522 (NY). Dominica: *F. E. Lloyd* no. 182 (NY). Ecuador: *Lehmann* no. 138 (US, cotype of *E.*

[1] For key to species see Rhodora xxxi, 224 (1929).

Lehmanniana); Galapagos Ids., *Svenson* no. 135 (B). COLOMBIA: Santa Elena, Dept. Antioquia, *Archer* no. 1226 (US). BOLIVIA: Apolo, 4800 ft., *R. S. Williams* no. 914 (NY). BRAZIL: Therezapolis, Rio de Janeiro, *L. H. Bailey* no. 1270a (NY); Campos de Jordão, São Paulo, *Bailey* no. 844 (NY); Butantan, São Paulo, *Hoehne* no. 5424 (G).

The type of *E. maculosa* in Vahl's herbarium is an elongate slender specimen, the culm dark-spotted by aquatic debris or by a fungus. *E. Schottiana* (Berlin, hb. *Nees* no. 1710) is the many-flowered phase, common in Southern Brazil, with firm appressed erose scales.

43. E. FUSCOPURPUREA (Steud.) H. Pfeiff. (MAP 20). Dwarf, perennial from a creeping rootstock; culms filiform, somewhat thickened, 2–7 cm. high: sheaths reddish-purple, whitened-membranous and lacerate at the apex: spikelets ovate, obtuse, 3–3.5 mm. long, 2 mm. wide: scales purplish-brown, obtuse, strongly convex, with greenish-white tips, the lowermost with a broad white midrib: style 2-fid.: achene[1] biconvex, 1.0 mm. long, obovate, dull purple with a rugose surface: style-base yellowish-green, conic, not subulate; bristles white, opaque, equalling the achene.—Fedde, Rep. Spec. Nov. xxviii. 19 (1930). *Isolepis fuscopurpurea* Steud. Syn. Cyp. 99 (1855). *H. univaginata* Boeckl. Cyp. Nov. i. 14 (1888), e descr. *H. hyalino-vaginata* Boeckl. Allg. Bot. Zeit. 1896. 52 (1896). *H. vincentina* Philippi, Anal. Univ. Chil. xciii. 349 (1896); C. B. Clarke in Engler, Bot. Jahrb. xxx. Beibl. 68: 18 (1901), with synonymy; Svenson, RHODORA xxxi. 239 (1929). *E. vincentina* var. *arcuata* (Kunze) C. B. Clarke (op. cit.) p. 19.—CHILE: Corral, Valdivia, *Philippi* no. 265 (TYPE, Paris); San Vincente, *Poeppig* (Paris, COTYPE of *E. arcuata*); Talcahuano, *Poeppig* (*C. Gay* no. 282, Paris). ARGENTINA: Rio del Valle, Catamarca, *Venturi* no. 6248 (US, B) (questionable).

E. fuscopurpurea has probably been derived from *E. maculosa*, differing in small stature and reduced style-base. The type is mixed with material of a nondescript plant of the *Dombeyana* group, from which Steudel may have described the style as 3-fid. The best representative of *E. fuscopurpurea* at Paris is *Gay* no. 282.

44. E. DEBILIS Kunth [PL. 543, FIG. 4]; Svenson, RHODORA xxxi. 240 (1929).

The TYPE of *E. debilis* at Berlin (Rio de Janeiro, 1814–15, ex reliquiis Sellowiani. *Humboldt* ded. 1836. hb. Kunth no. 3202) is an annual, much like *E. caribaea*, but having whitened, acute spikelets with thin, loose scales, the achenes becoming purplish-brown to black only when mature. *E. macra*, also from Humboldt, with perhaps a perennial rootstock, is apparently the same, except that it is slenderer and few-

[1] Described from *Gay* no. 282

flowered. Perhaps the West Indian plants listed under *E. Sintenisii* belong here.

45. E. BAHAMENSIS Boeckl.; Svenson, RHODORA xxxi. 229 (1929).

46. E. ATROPURPUREA (Retz.) Kunth; Svenson, RHODORA xxxi. 227 (1929).

47. E. CAPILLACEA Kunth [MAP 19]; Svenson, RHODORA xxxi. 234 (1929).

48. E. SELLOWIANA Kunth [MAP 21], Enum. ii. 149 (1837); C. B. Clarke, Ill. Cyp. t. xxxv. figs. 12–16 (1909); Barros, Anales Mus. Hist. Nat. Buenos Aires 437, fig. 4 (1928); Svenson, RHODORA xxxi. 234, t. 191, fig. 42 (1929); Osten, Anales Mus. Hist. Nat. Montevideo, ser. 2a. iii. 168, fig. 16 (1932). *H. albivaginata* δ *macrostachya* Boeckl. Linnaea xxxvi. 438 (1869–70). *E. crispovaginata* Boeckl. in Engler, Bot. Jahrb. viii. 206 (1887), e descr. *E. thermalis* Rydberg, Mem. N. Y. Bot. Gard. i. 69 (1900). *E. galapagensis* Svenson, RHODORA xxxi. 233 (1929). *E. flaccida* sensu Standley, Field Mus. Publ. Bot. viii[4]. 261 (1931), in large part.—URUGUAY: Montevideo, *Herter* no. 42 (G). PARAGUAY: Villa Encarnacion, *Osten* no. 7882 (B, S); Igatimi, *Hassler* no. 5563 (G). BRAZIL: Goyaz, *Glaziou* no. 22330 (NY); Minas Geraes, *Claussen* (*M. B.* no. 1025) (NY); *Riedel* no. 929 (Cal). FRENCH GUIANA: Cayenne, *Broadway* no. 940 (G, NY). BRITISH GUIANA: Georgetown, *Hitchcock* no. 17026 (NY). BOLIVIA: Apolo, alt. 4800 ft., *R. S. Williams* no. 909 (NY). ECUADOR: Chatham I., *Stewart* no. 1079; Albemarle I., *Stewart* no. 1078 (Cal); Indefatigable Island, *J. T. Howell* no. 9257 (B, Cal). COLOMBIA: Cauca Valley, *Pittier* no. 635a (NY); Popayan, alt. 1300–2000 m., *Lehmann* no. 8428 (US). COSTA RICA: vic. Signatapegue, Dept. Comayagua, *Standley* no. 56052 (US); La Estrelle, Prov. Cartago, *Standley* no. 39362 (US); San Pedro des Monts, Prov. San José, *Standley* no. 32795 (US); vic. San Sebastian, Prov. San José, *Standley* no. 32740 (US); La Palma, alt. 1500–1700 m., *Maxon* & *Harvey* no. 7920 (NY).

A wide-spread species with coarse, usually rigid and often reflexed culms, varying from dwarfed material (*Standley* no. 56052 and the type of Boeckeler's *E. albivaginata* δ *macrostachya*) sometimes only 2 cm. high, to the elongated specimens (5 dm.) of *Broadway* no. 940. The TYPE at Berlin (Brazil: *Sellow*) has culms 10–12 cm. tall, 1.5 mm. wide; and yellowish-olive, turgid achenes 1.3 mm. long. In general, collections from Central America have been labeled *E. ocreata* or *E. Pittieri*. The latter species was described by Boeckeler as having purplish-black achenes, and is therefore to be associated with *E. flavescens*, or more probably, with *E. caribaea*.

E. Arechavaletae Boeckl. Cyp. Nov. i. 14 (1888); Osten, Anales Mus. Hist. Nat. Montevideo, ser. 2, iii. t. xxxiii, figs. 7, 8 (1932). *E. flaccida*

var. *Arechavaletae* (Boeckl.) Osten. (l.c.), p. 167.—This plant, from the vicinity of Montevideo, is nearest to *E. Sellowiana*, with which it has also been associated by Osten. He describes it (p. 168), "20–25 cm. alta, culmis strictis erectis, 1 mm. diam. Spiculis 6–3 mm., squamis pallidis, ad latere ferrugineis. Nux obovata fusca nitida, setae albidae nuce breviores." It is probably a distinct species, but I have seen very little material for comparison.

The plants from hot springs in Yellowstone Park (*E. thermalis* Rydberg) have coarse culms and large olivaceous achenes, especially in *A. Nelson* no. 6157 (NY). These, together with *Tidestrom* no. 384, Wasatch Mts., August 28, 1907 (hb. Catholic Univ.), I am placing, though with some hesitation, under *E. Sellowiana*, the species which they most closely approach.

49. E. Schaffneri Boeckl. [map 23]; Svenson, Rhodora xxxi. 233 (1929).—Added citations: Mexico: Jicaltepec, *Liebmann* (NY) (as *E. capitata*). Honduras: Copan, *Bernoulli* no. 811 (NY). Guatemala: between Sacapulas and Aguacatan, 6000 ft. alt., *Amy Spingarn* in 1934 (B). Costa Rica: *Pittier* no. 548 (US) (as *E. Pittieri*).

This little species is characterized by many-flowered spikelets with small divaricate scales, and striate achenes considerably smaller than those of *E. Sellowiana*.

50. E. olivacea Torr. [pl. 541, fig. 2; map 18]; Svenson, Rhodora xxxi. 231 (1929). *E. flaccida* (Reichenb.) Urban, var. *olivacea* (Torr.) Fernald & Griscom, Rhodora xxxvii. 155 (1935).—Additional stations of note: New York: Knickerbocker Lake, Columbia Co., *McVaugh* no. 3827 (Alb, B); brackish pond, Rensselaer Co., *Wibbe* in 1873 (NY); Dyking Pond, Rensselaer Co., *House* no. 20565 (Alb); Minerva, Essex Co., *House* no. 15458 (Alb); Newcomb, Essex Co., *House* no. 10730 (Alb); Sanford Lake, Essex Co., *House* no. 18068 (Alb); West Fort Ann and Patten's Mills, Washington Co., *Burnham* (Alb). Pennsylvania: Bristol, Bucks Co., *Driesbach* in 1924 (Carnegie). South Carolina: Aiken, *Ravenel* in 1866 (NY). Georgia: Stone Mt., *McVaugh* in 1936 (Ga.). Ontario: Toronto, W. Scott (Can.). Michigan: Wycamp Lake, Emmett Co., *Gleason* no. 294 (B, NY); Mud Lake, Cheboygan Co., *Gates* no. 9906 (B); Austin Lake, Kalamazoo Co., *C. R. Hanes* no. 1367 (B). Wisconsin: Long Lake, Iola, Waupaka Co., *Hotchkiss & Martin* no. 4439 (B). Illinois: Wolf Lake, Chicago, *E. J. Hill* no. 218 (Ill). Indiana: many collections by *Deam* in the northern part of the state; by *E. J. Hill* and others (Ill) from Lake County. Minnesota: Mink Lake, Clearwater Co., *J. B. Moyle* no. 931 (NY).

Throughout the West Indies, typical *E. flavescens* is characterized

Eleocharis, series Ovatae (habit × ½, spikelets × 2½, achenes × 20). Fig. 1, E. obtusa var. jejuna. Fig. 2, E. Engelmanni f. detonsa. Fig. 3, E. diandra. Fig. 4, E. ovata. Fig. 5, E. lanceolata. Fig. 6, E. obtusa var. gigantea. Fig. 7, E. obtusa.

Eleocharis (habit × ½, spikelets × 2½, achenes × 20). Fig. 1, E. flavescens. Fig. 2, E. olivacea. Fig. 3, E. Sintenisii. Figs. 4, 5, E. minuta. Fig. 6, E. Sintenisii (E. Shaferi). Fig. 7, E. intricata (E. madagascariensis). Fig. 8, E. minuta (E. Maidenii).

by small achenes (0.8–1.0 mm. long) which become reddish-brown before maturity and deep purplish-black when mature. *E. olivacea* has larger achenes, usually with a larger subulate style-base, and an olivaceous surface which sometimes becomes darkened, but does not show the reddish coloration of *E. flavescens*. Color of scales is of little significance, but tends to be faded in estuarine specimens. The bristle character, as in practically all other species of *Eleocharis*, is nearly worthless. Based on these characters, especially the color and size of achenes, I have yet to find undoubted *E. flavescens* north of South Carolina except for two collections: Virginia Beach, Virginia, *Hollick & Britton* in 1890 (NY) and Ogletown, Newcastle Co., Delaware, *Commons* in 1866. Although color of achenes holds well as a specific character in other members of this group, it is possible that a demonstrable transition will be found between *E. flavescens* and *E. olivacea*.

51. E. FLAVESCENS (Poir.) Urban [PL. 541, FIG. 1; MAP 22], Symb. Ant. iv. 116 (1903); Britton, Surv. Porto Rico & Virgin Ids. v. 91 (1923). *Scirpus flavescens* Poir. in Lam. Encycl. vi. 756 (1804). *Baeothryon flavescens* A. Dietrich, Sp. Pl. ii. 91 (1833). *Scirpus Gaudichaudianus* Kunth, Enum. ii. 157 (1837). *Eleogenus ocreatus* Nees vars. α *1. minor*, α *2. flaccidus* Nees in Mart. Fl. Bras. ii[1]. 102 (1842). *Scirpus bahiensis* Steud. Syn. Cyp. 83 (1855). *H. albivaginata* vars. β *flaccida*, γ *stricta*, ε *humilis* Boeckl., Linnaea xxxvi. 437, 438 (1869–70). *H. Urbani* Boeckl. Allegm. Bot. Zeit. ii. 20 (1896). *H. Dussiana* Boeckl., op. cit., p. 54; *E. flaccida* (Reich.) Urban, Symb. Ant. ii. 165 (1900); Svenson, RHODORA xxxi. 235 (1929).—West Indies, eastern South America, Mexico and eastern United States. [See also discussion under *E. olivacea*].

The TYPE of *E. flavescens* (Paris) from Porto Rico is 4–6 cm. high, with yellowed culms unusually firm and rigid, and with immature olivaceous achenes. *Scirpus bahiensis* Steud. (TYPE, Paris) from Salzmann's collection at Bahia in 1834 is apparently the same; likewise *Gardner* no. 150 (NY, US), the collection upon which *Eleogenus ocreatus* α 1. *minor* was based. *E. Dussiana* from Martinique, *Duss* no. 466a (COTYPE, NY), is an elongate form. *S. Gaudichaudianus* from Rio Janeiro (TYPE, Berlin) outwardly resembles *E. radicans*, with culms 10–15 cm. long, and small, olivaceous achenes. It has been determined as *H. albivaginata* var. *stricta* by Boeckeler. *H. Urbani* (PL. 545, FIG. 4), founded on worthless material of *Glaziou* no. 17174 (TYPE, Cop) from Rio de Janeiro, is apparently *E. flavescens*. The specimen of *E. lactevirens* Steud. Cyp. 79 (1855) at Berlin, probably a

COTYPE, has ocreate sheaths as in *E. flavescens* but many-flowered spikelets resembling those of *E. atropurpurea*, under which it was included by Boeckeler. The achenes are unusually small (0.7 mm. long) with a translucent brownish-olive surface, and the swollen culms are 6–12 cm. long and nearly 1 mm. wide. It may well represent a distinct species allied to *E. Schaffneri*. Weigelt's specimen of *Scirpus flaccidus* at Berlin (TYPE) with small olivaceous achenes and the habit of "*Scirpus planifolius* Muhl.," is perhaps the same *E. lactevirens*. *E. flavescens* is not definitely known from Central America, and the only Mexican collection seen, is from Guadalajara, *Pringle* no. 3431 (NY).

E. FLAVESCENS (Poir.) Urban var. **fuscescens** (Kuekenthal), n. comb. *E. flaccida* var. *fuscescens* K. in Fedde, Rep. Spec. Nov. xxiii. 191 (1926); Svenson, RHODORA xxxi. 238 (1929). *E. praticola* Britton in Small, Fl. Se. U. S. 182 and 1327 (1903); Svenson, RHODORA xxxi. 229 (1929).

Re-examination of the type of *E. praticola* shows that it is composed of two things:

1) plants 3–4 cm. high, with weak culms and brown spikelets, sheaths marcescent at apex, achenes reddish-brown (0.75 x 0.5 mm.) with white bristles half as long. . . . . *E. flavescens* var. *fuscescens*.
2) plants 3–4 cm. high, with rigid flattened culms, brown spikelets, red sheaths with pointed apex; achenes black (0.85 mm. long) with brown rudimentary bristles. . . . . *E. caribaea*.

The achenes of *E. praticola* were described as "about 0.5 mm. long, dark brown" with bristles "retrorsely barbed, shorter than the achene," and this description applies only to the specimens with scarious sheaths. My description of *E. praticola* (l.c.) was based on mixed material, but the illustration (pl. 191) shows the "*flavescens*" type, both in habit and achene. *Fredholm* no. 5820 was selected as the TYPE by Dr. Britton, and an envelope on a separate sheet has in Fredholm's writing "Plant comes near *E. capitata* R.Br., but the bristles are shorter (about 2/3) than achene which is dark brown, not jet black . . . Plant only found in shallow excavations on Kissimmee prairie." These dwarf Florida specimens are not the equivalent of Kuekenthal's Cuban plants with culms 6–10 cm. tall, which represent ordinary *E. flavescens* with brownish scales, but I do not know where to draw the line.—CUBA: Santa Clara, *Ekman* no 18369[b]. FLORIDA: *Fredholm* no. 5820 (in part) (TYPE of *E. praticola*, NY); *A. A. Eaton*, Dade County in 1903 (NY) and no. 837 (in part) (G);

Eva, Polk County, *Small & DeWinkeler* no. 9760 (NY). Specimens of *E. praticola* previously cited from Cuba and the Bahama Islands are here referred to *E. geniculata* (*E. caribaea*).

52. E. Sintenisii Boeckl. (pl. 541, fig. 3). map 24. *Rootstocks wide-creeping to matted-lignescent;* culms filiform, 0.5–3 dm. long, often short and rigid, irregularly sulcate; sheaths stramineous to purple, the *apex acute, not inflated:* spikelets usually few-flowered, elliptic-lanceolate to ovate, obtuse to acute; scales obtuse to subacute, stramineous to purple, often with a green midrib: stamens 2 or 3, anthers 0.4–0.7 mm. long: style 2-fid: achenes lenticular, narrowly obovoid, 0.9–1.4 mm. long, shining black; style-base conical to subulate; bristles light brown to white, equalling or exceeding the achene.—Cyp. Nov. i. 16 (1888). *E. Shaferi* Britton, Mem. Torr. Bot. Club xvi. 59 (1920) [pl. 541, fig. 6]. *E. yunquensis* Britton, Bot. Porto Rico & Virgin Ids. v. 92 (1923). *E. atropurpurea* sensu Britton (op. cit., p. 91); not (Retz.) Kunth. *E. Ekmanii* Kuekenthal in Fedde, Rep. Spec. Nov. xxiii. 192 (1926); Svenson, Rhodora xxxi. 230 (1929). *E. debilis* Kunth, forma *macra* (Kunth) Boeckl., sensu Kuekenthal (l. c.) (as to Cuban plants).—Porto Rico, Cuba, and the Florida Keys. Porto Rico: prope Bayamon ad Palo Seco in fossis, hb. *Krug. & Urban* no. 1220 (NY, cotype of *E. Sintenisii*); moist places between Bayamon and Comerio, *Britton* no. 8527; Sierra de Naguabo, *Shafer* nos. 3607 (NY), 3138 (NY); Collazo River, *Britton* no. 8671 (NY); wet savanna near Laguria, San José, *Britton* & *Britton* no. 7179 (NY); Luquillo Mts., 950 m., *Britton & Bruner* no. 7619 (NY, type of *E. yunquensis*). Cuba: Campo Florido, Havana, *Ekman* no. 19015 (NY, cotype of *E. Ekmanii*); Batabano, Havana, *Shafer* no. 231 (NY); Santa Clara City, *Ekman* no. 18846 (NY); Sierra Nipe, near Woodfred, Oriente, *Shafer* no. 3414 (NY, 2 sheets), (type of *E. Shaferi*); Sierra de Nipe, Oriente, *Ekman* no. 2146 (NY); limestone plain, Ensenada de Siguanea, *Britton* & *Wilson* no. 14892 (NY). Florida: hammocks, Big Pine Key, *Small* & *Small* no. 5081 (NY); lime sink, Big Pine Key, *Killip* no. 32079 (US, B).

Of the rhizomatous West Indian specimens with acute sheath-apex, I can make out only a single species, although a considerable amount of variation occurs in size of achenes. Those of the type of *E. Shaferi* are 1.4 mm. long, including the subulate style-base. Smaller specimens, such as the type of *E. Sintenisii*, have achenes often only 1.0 x 0.5 mm. The relatively narrow achene of material from mountainous parts of Porto Rico and Cuba broadens out in the collections from Big Pine Key to average 0.9 x 0.6 mm., but I see no distinction between the Florida plants and, for example, *Britton* no. 7179 from Porto Rico. *E. Sintenisii* is closely related to *E. maculosa* and *E. geniculata* (*E. caribaea*), and also to *E. debilis* of Brazil.

53. E. GENICULATA (L.) R. & S.

Through examination of specimens described in *Hortus Cliffortianus*, which are at the British Museum, J. E. Dandy adequately shows that the description of *Scirpus geniculatus* L. rests entirely upon the plant which Linnaeus actually saw, which is the species now called *E. caribaea*. The large species with septate culms, passing as *Eleocharis geniculata*, must take the name *E. elegans* (HBK) R. & S.

Some time ago Mr. Dandy sent me a letter, embodying the results of his investigation of the status of *E. capitata*. A synopsis of this report has been published by C. X. Furtado in the Gardens Bulletin, Straits Settlements ix. 293, 294, 298–299 (1937). I must therefore be content with excerpts from Mr. Dandy's letter:

"*Scirpus capitatus* belongs to *Eleocharis*, and under this genus Blake (1918) took up for it the name *E. capitata* R. Br., which he treated as a new combination having *S. capitatus* L. as basis. But here he erred, for *E. capitata* R. Br. was *not* founded on *S. capitatus* L.; Robert Brown plainly indicated as much by deliberately excluding the Clayton plant which is the holotype of *S. capitatus*. What Brown did cite under *E. capitata* was "Scirpus capitatus. *Linn. sp. pl. ed. Willd.* 1. *p.* 294. (secundum synonyma Brownii et Sloani . . .)" together with *Scirpus culmo nudo, spica terminatrice subrotunda* L. (Hort. Cliff.) . . . "In view of these facts, *E. capitata* R. Br. must be regarded as the name of a new species and not as a new combination, and the lectotype should be the plant from which Brown drew up his description, namely his own no. 5930 from Australia (in the British Museum Herbarium). This plant is conspecific with *E. caribaea*, and so also is the "Hortus Cliffortianus" plant which Brown referred to *E. capitata* and which will be further discussed below.

"Thus *Scirpus capitatus* L. and *Eleocharis capitata* R. Br. are independent species based on different types and it follows that Brown's name prevents the valid transfer of Linnaeus's epithet *capitata* to *Eleocharis*. The next earliest name for Linnaeus's species is *S. filiformis* Lam. (1791), but this is invalidated by *S. filiformis* Burm. f. (1768). The next available name is *S. tenuis* Willd. (1809), and as this is legitimate the correct name for the species under *Eleocharis* is *E. tenuis* (Willd.) Schult.

"*Scirpus geniculatus* L. was based on *Scirpus culmo nudo, spica terminatrice subrotunda* L. (Hort. Cliff.) together with *Juncus aquaticus geniculatus, capitulis equiseti, major* Sloane and *Juncus aquaticus geniculatus, capitulis equiseti, minor* Sloane. In the Linnean Herbarium there is no specimen named *S. geniculatus* by Linnaeus; there is only a specimen (from Browne) which was named *S. geniculatus* by Solander and which was not in the herbarium in 1753. This specimen has been determined by C. B. Clarke as *Eleocharis interstincta*. It has certainly no status as regards the typification of *S. geniculatus*. Apparently the only actual specimen of *S. geniculatus* which Linnaeus saw and accepted was the plant in the Hortus Siccus Cliffortianus (now at the British Museum) which he originally named *S. culmo nudo, spica terminatrice subrotunda*. His original description of *S. geniculatus*, "Scirpus culmo tereti nudo, spica subglobosa terminali," was virtually a rewording of his phrase-

name published in the "Hortus Cliffortianus," and the plant dealt with in that work should be taken as the lectotype of *S. geniculatus*. The Sloane synonyms were included solely on the evidence of Sloane's descriptions and figures; Linnaeus had not seen the actual plants, which are now preserved in the Sloane Herbarium at the British Museum.

"The "Hortus Cliffortianus" plant, which is thus the lectotype of *Scirpus geniculatus* L., has already been mentioned above in the discussion of *S. capitatus*. It is identical with *Eleocharis caribaea* and was correctly referred by Robert Brown to his *E. capitata*. This means that the names *E. caribaea* (Rottb.) Blake and *E. capitata* R. Br. become synonyms of *E. geniculata* (L.) Roem. Schult., which was based on *S. geniculatus* L., though Roemer and Schultes followed Vahl in treating the true (lectotypical) plant as var. β."

The synonymy of the true (emended) *E. geniculata* is as follows[1]:

Eleocharis geniculata (L.) Roem. & Schult. Syst. Veg. ii. 150 (1817) emend., quoad var. β. *Juncus aquaticus geniculatus, capitulis equiseti, minor* Sloane, Cat. Pl. Ins. Jam. 37 (1696); Voy. Jam. Nat. Hist. i. 122, t. 75 fig. 2 (1707). Ray, Hist. Pl. iii. 628 (1704). *Scirpus culmo nudo, spica terminatrice subrotunda* L. Hort. Cliff. 21 (1737). Royen, Fl. Leyd. Prodr. 48 (1740). *Scirpus geniculatus* L. Sp. Pl. i. 48 (1753) pro parte, excl. syn. *Juncus* . . . *major*. *Scirpus caribaeus* Rottb. Descr. Pl. Rar. Ic. Ill. 24 (1772). *Scirpus geniculatus* var. *minor* Vahl, Enum. Pl. ii. 251 (1806). *Eleocharis capitata* R. Br. Prodr. 225 (1810). *Eleocharis geniculata* var. *minor* (Vahl) Roem. & Schult. *loc. cit.* (1817). *Eleogenus capitatus* (L.) Nees ex Wight, Cat. 113, n. 1899 (1834) pro parte, excl. syn. L. *Limnochloa geniculata* (L.) Nees in Mart. Fl. Brasil. ii, 1. 99 in adnot. (1842) pro parte. *Chlorocharis capitata* (R. Br.) Rikli in Pringsh. Jahrb. Wiss. Bot. xxvii. 564 (1895). *Eleocharis caribaea* (Rottb.) Blake in Rhodora xx. 24 (1918).[2]

Revised nomenclature of the three species (and additional synonymy of *E. geniculata*) is as follows:

(1) E. geniculata (L.) R. & S.; not of recent auths. *E. setacea* R. Br. Prod. 225 (1810). ? *Scirpus caducus* Delile, Fl. Egypte 9, t. 6, fig. 2 (1813). *E. caduca* Schultes, Mant. ii. 88 (1824); Kunth, Enum. ii. 151 (1837); Steudel, Syn. Cyp. 79 (1855); Boiss. Fl. Orient. v. 388 (1884); C. B. Clarke, Journ. Bot. xxv. 268 (1887); Durand & Schinz, Consp. Fl. Afr. v. 597 (1895); Terraciano, Malpighia ii. 305 (1888); Fiori, Fl. Ital. Ill. fig. 421 (1921). *Scirpus Brownii* Spreng. Syst. i. 204 (1825). *E. riparia* Nees ex Spreng. Syst. iv.[2] 27 (1827), as synonym of *S. Brownii*. *Scirpus palmaris* Willd. ex Kunth, Enum. ii. 150 (1837), as synonym (Willd. no. 1185!). *E. microformis* Buckley; Svenson, Rhodora xxxi. 230 (1929).

(2) E. elegans (HBK) R. & S. Syst. ii. 150 (1817). *E. geniculata*

[1] Sec. J. E. Dandy.

[2] Svenson, Rhodora xxxi, 225 (1929).

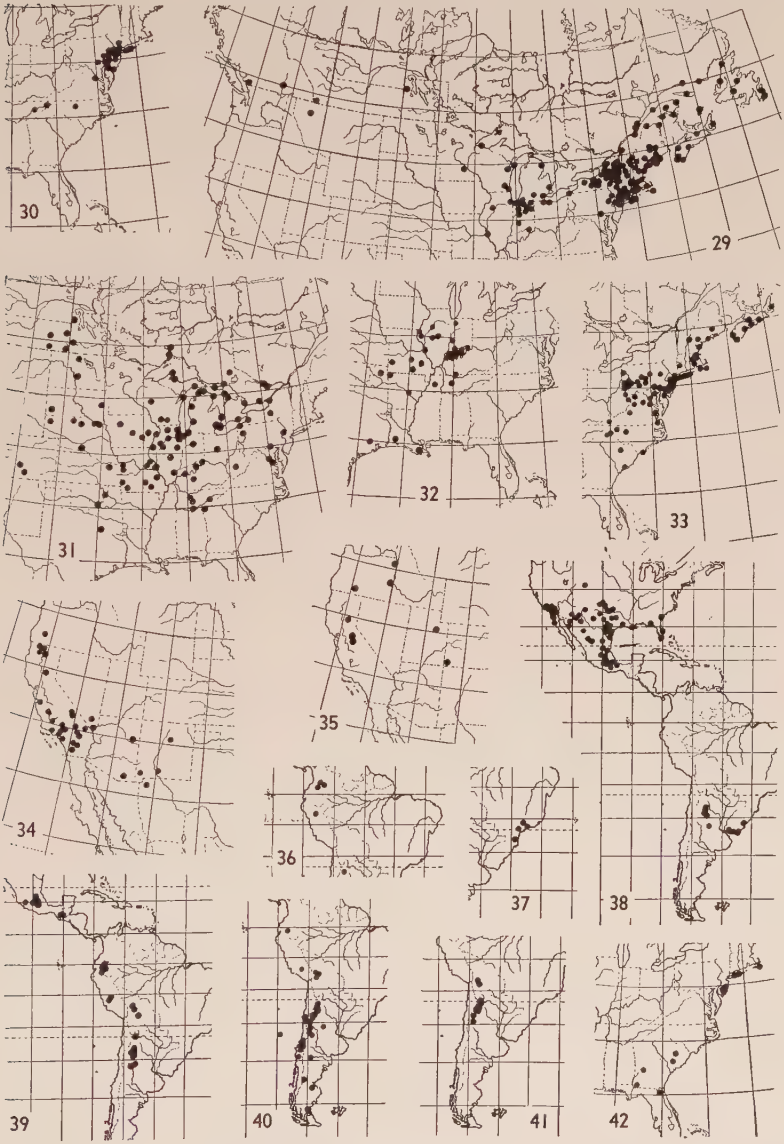
of auths.; Svenson, Rhodora xxxix. 259 (1937); not *Scirpus geniculatus* L.

The type collection of *Scirpus elegans* at Berlin (Kunth hb. 3226) bears the notation "Lima, D'Urville ded. 1835. *Scirpus geniculatus* Linn. (fide herb. Vahl). *Scirpus elegans* Humb. & Kth. ex herb. Willd. descripsit."

(3) E. tenuis (Willd.) Schultes, Mant. ii. 89 (1824); *E. capitata* (L.) R. Br. var. *typica* Svenson, Rhodora xxxiv. 199 (1932).

Stations for *E. geniculata* (*E. caribaea; E. dispar*) about the Great Lakes have been much extended through the explorations of Dr. T. M. C. Taylor and Dr. F. J. Hermann (cf. Rhodora xxxvii. 365–367 (1935)). This is the most widely-distributed species of *Eleocharis* in the world, and it would be strange if it did not appear in the interior of North America. The plant of the Great Lakes is the lax form seen at the limit of range, apparently identical with *E. setacea* of Australia. Plants with similar roseate to purple scales and purple achenes are common in the tropics (cf. *Moldenke* no. 511 (NY) and *Small* & *Carter* no. 2887 (NY)), nor does laxness of habit or even reduction of bristles have much significance. No advantage appears to be gained by maintaining var. *dispar*. Of E. J. Hill's care in describing *E. dispar* no one can doubt, but his letter to Dr. Britton (accompanying specimens) shows that he compared with his Indiana material "perennial" plants of *E. capitata*, i.e. *E. flavescens*, which comprised the true "*Scirpus capitatus* L." of Torrey's herbarium.

The type of *E. caduca* (Delile) R. & S. [Paris] from Damietta, Egypt, is a plant without stolons, with upper sheaths acute and definitely not ocreate, and with purplish-black achenes 1.2 mm. long. But Delile's plate definitely shows a plant with stolons. From Sardinia I have seen another collection of *E. caduca* (*I. Mueller* in hb. Calif. Acad.). The dwarf round-headed *E. microformis* from Texas with achenes 0.7–0.9 mm. long, often confused with *E. atropurpurea*, I now believe to be a small extreme of *E. geniculata* (*E. caribaea*), similar to specimens from Nicaragua (*Maxon, Harvey & Valentine* no. 7291 (NY)), and from Honduras (*Schipp* no. 913 and *Standley* no. 56671 (NY)). *E. caribaea* var. *Stokesii* F. B. H. Brown, Bishop Mus. Bull. 84: 106, Pl. xivB (1931), was published without being distinguished from typical material, but the variety at any rate cannot have much significance.



Maps 29–42. Map of Eleocharis: 29, elliptica; 30, tenuis var. pseudoptera; 31, compressa; 32, tenuis var. verrucosa; 33, (tenuis var. typica); 34, Parishii; 35, Bolanderi; 36, (nodulosa var. angulata); 37, subarticulata; 38, montevidensis; 39, Dombeyana; 40, albibracteata; 41, crinalis; 42, tricostata.

Ocreatae (Old World)

The Old World material has at times been placed under *E. flaccida* var. *humilis,* which is equivalent to *E. flavescens;* but it actually represents two well-defined species of variable habit, differing markedly from *E. flavescens* in the character of the achenes:

Mature achenes olivaceous, 1.0 mm. long.....*E. minuta.*
Mature achenes purplish-black, 1.2–1.3 mm. long.....*E. intricata.*

54. E. minuta Boeckl. (pl. 541, figs. 4, 5, 8) map 26. Culms spongy, 1–3.5 cm. long, green, decumbent or arching, closely matted, sulcate-flattened to quadrangular; sheaths membranous, but not conspicuously inflated: spikelets ovoid, 3–7-flowered: scales ovate, subacute, 1–1.5 mm. long, scarcely keeled, green, often with purple sides: stamens 3: achenes biconvex, olivaceous, obovate, 1 mm. long, 0.6 mm. wide, lightly striolate-reticulate: style-base flattened-apiculate, ¼ as wide as the achene: bristles 6–7, white, equalling the achene.—Engl. Bot. Jahrb. v. 503 (1884); Chermezon, Bull. Soc. Bot. France lxxv. 285 (1928). *E. Maidenii* Kuekenthal in Fedde, Rep. Spec. Nov. xiii. 135 (1914).—Madagascar: *Hildebrandt* no. 3527 (Cop); *Perrier de la Bâthie* nos. 2688 (B), 18484 (B); *DeCary* in 1921 (K). Uganda: King's Lake, Kampala, *Hancock & Chandler* no. 27 (K, B). Australia: Brisbane River, *Bailey* (K); Richmond River, *C. Moore* no. 159 (K) (as *E. atropurpurea*); Northgate to Nudgee, Brisbane, on wet mud, *S. T. Blake* no. 4724 (B).

Boeckeler's type or cotype (Cop) of *E. minuta* is less compact than P. de la Bâthie's no. 2688, and the subulate style-base is a trifle more prominent. These are the same as Bailey's dwarf plants from Brisbane, but the species ranges to much larger plants with culms as high as 14 cm. (cf. *Blake* no. 4724).

55. E. intricata Kuekenthal in Fedde, Rep. Spec. Nov. xiii. 135 (1914) [pl. 541, fig. 7; map 27]; Svenson, Rhodora xxxi. 239 (1929). *E. radicans* Kunth, Enum. ii. 142 (1837) (as to Mauritius plant only), not *Scirpus radicans* Poir. *Scirpus repens* Willd. ex Schult. Mant. ii. 84 (1824). *E. Chaetaria* sensu Baker, Fl. Maur. & Seychelles 420 (1877); not R. & S. *E. madagascariensis* Chermezon, Bull. Soc. Bot. France lxxv. 284 (1928).—East Africa, Madagascar and Mauritius. Africa: Kyimbila, Nyassa, 15–1600 m., *M. Stolz* no. 1132 (cotype, Ph, K); Socotra, *Balfour* no. 457 (K). Madagascar: *P. de la Bâthie* no. 16646 (B); *Blackburn* in 1863 (K, as *E. setacea*). Mauritius: *Horne* in 1876 (K, as *E. acicularis* and *E. Chaetaria*); in streams, *R. E. Vaughan* B43 (K); banks of Moka River, *P. B. Ayres* in 1861 (K); *M. Bouton* (K, as *Scirpus natans*); *H. H. Johnston* in 1888 (K).

Scirpus repens Willd. (no. 1175), based on dwarf plants collected

by Petit-Thouars in Mauritius, closely resembles *Scirpus radicans* Poir., and has immature olivaceous achenes 1.2 mm. long, the style-base being more prominent that in *E. flavescens*. *E. intricata* and *E. madagascariensis* have identical spikelets and achenes (1.2–1.3 mm. long, with prominent style-base), and differ only in habit; the latter plant having culms up to 16 cm. high and sheaths decidedly ocreate, though not as prominently as in *E. flavescens*.

Series 6: Palustriformes, Subseries: Palustres

The North American representatives of this group received an excellent and detailed treatment by Fernald & Brackett in Rhodora xxxi. 57–77 (1929). Yet the group in its wider distribution presents such baffling interrelationships and so few tenable characters that this present treatment must necessarily be provisional. In eastern United States, thanks to the above-mentioned work, the entities are clear; in Europe and in western United States, the situation seems to be chaotic. The *Palustres*, chiefly of holarctic distribution, have probably spread out in post-glacial time, achieving a variation comparable with that of *Rubus* or *Cratacgus*. In Western United States, with its natural barriers and diversified terrain, numerous intergrading geographical races have developed, the most noteworthy of which I have illustrated by drawings and photographs. It would be perfectly easy to describe more species in this group, adding to the plethora of intangible species, but I have made little or no change. In my mind, there is even some question whether more than a single good species of the *Palustris* group exists in northwestern Europe, and whether in Europe there are not environmental responses to sea-strand, meadow, and bog, which parallel the variation of *E. palustris* in western America. Although I have spent an inordinate amount of time on this group and have seen a vast amount of material, the problems do not appear to be close to solution. A careful, perhaps statistical, study of the group is needed throughout Europe; then, with enlightenment as to actual lines of specific demarcation, a similar treatment of the plants of western United States should be attempted. For this I hope that I have at least built up a framework.

Comparative width of the tubercle (style-base), the uniglumate character of the spikelet, rigidity or softness of the culm, or even a mucronate sheath-apex, are characters which do not always hold in species of this group. For example, the type and associated collections

of *E. macrostachya*, which have a well-developed mucro, pass imperceptibly into plants with non-mucronate sheaths; normal *E. macrostachya* freely intergrades with uniglumate plants of the Great Plains and westward, and specimens with soft flaccid culms merge directly into those with rigid culms. One collection which Dr. Ada Hayden has sent me (no. 7010 from Clay Co., Iowa) has plants with the lower half flaccid and ribbon-like, the upper half cylindric and rigid; such structural variations probably reflect rapid change in water-level or show differences in submerged and emersed portions of the culm.

Similar intergradations appear in European plants. With hopes of solving the *E. palustris* problem, I collected specimens in Europe during the summer of 1937, whenever it was possible to do so. The largest collection consisted of homogeneous plants (pl. 542, fig. 1) from sandy lake-shores at Ramkvilla, north of Wexiö in Sweden, growing with *Scirpus lacustris, Lobelia Dortmanna, Ranunculus reptans* and *Litorella uniflora*. These had the rigid opaque culms of typical *E. palustris*. Yet specimens (32) selected at random all had the wide tubercle (wider than high) characteristic of *E. mamillata*, and, to make matters worse, 4 of them (12½%) were definitely uniglumate. Such rigid plants with ovate spikelets and dusky divaricate scales acute and strongly hyaline at the apex, appeared to be representative of *E. palustris* in Småland, the province where Linnaeus lived. Plants with thin, semitranslucent culms (*E. mamillata*), occasional along meadow brooks, had tubercles of the same type. The achenes of *E. palustris*, though variable in size, were larger, duller, and somewhat more reticulate than is usual in plants of eastern North America; in well-developed specimens they averaged 2.6 mm. long and 1.5 mm. wide, with tubercles 0.4 mm. high and 0.43 mm. wide. This type of plant is characteristic of much of the herbarium-material of *E. palustris* from Sweden, and even with the fine lot of specimens given to me by Dr. Samuelsson, I have not reached a satisfactory basis for precise separation of *E. palustris*, *E. mamillata*, and *E. uniglumis*. Though the amplexicaule lower scale is the criterion for determination of *E. uniglumis*, the dark brown semi-glutinous scales and the subsaline habitat are equally characteristic. It was rather disconcerting to find such material [pl. 542, fig. 2] (all but the uniglumate condition) along the seacoast near Giant's Causeway in Ireland.

In addition to Clarke's revision of the *Eleocharis* species of Europe[1]

[1] Journ. Bot. xxv. 267–271 (1887).

and the complicated treatment of the *Palustris* group by Ascherson & Graebner under *Scirpus*,[1] the European *Palustres* have been elaborated by H. Lindberg[2] and by Beauverd.[3] In the last-named treatment, the varying spiral arrangement of the scales is illustrated for several species; *E. benedicta* is described from an alpine lake in Savoy, and Dr. Lindberg's *E. mamillata* is reduced to a subspecies under *E. palustris*.

As to the type of *E. palustris*, I have examined the two sheets in the Linnaean herbarium at London. One of these is *E. multicaulis*, from which the idea that typical *E. palustris* was a small plant may have been derived. The other is *E. mamillata*, so labeled by Dr. Lindberg, of which I have a photograph through the kindness of Mr. Savage. In recent correspondence, Dr. Lindberg is of the opinion that this Linnaean specimen should not be accepted as the sole type of *Scirpus palustris*.

Scirpus glaucescens, represented by no. 1188 in the Willdenow Herbarium, belongs with *E. palustris*. It is most likely that Willdenow made an error in counting or transcribing the number of style-branches, for the material has styles definitely bifid. The plant is characterized by a large number of filiform sterile culms with somewhat inflated sheath-apices. It does not resemble any material that I have seen from North America, but appears to be a glaucous form of the European species, much like specimens which I collected in a tidal stream near Newquay in Cornwall.

Scirpus nudissimus Steud. & Jardin, Bull. Soc. Linn. Normandie, ser. 2, ix. 278, 280 (1875) (a *nomen subnudum*), the TYPE (Paris) coming from Honolulu, has shining dark yellow achenes 1.5 mm. long, with a whitened constricted style-base. It is the same as *E. palustris* β *australis* Nees, Nov. Act. Acad. Caes. Leopold Nat. Cur. xix. Suppl. i. 96 (1843), based on a collection by Meyen from Oahu (COTYPE, Cal. Acad.). Here belongs a specimen from the U. S. Exploring Expedition (G) and also *Degener* no. 9002 (NY, collected May 10, 1927), from an arid part of the campus of the University of Hawaii at Honolulu, and not seen elsewhere by him. These specimens are all exceedingly close to typical *E. macrostachya*, and like *E. obtusa* var. *gigantea* they have probably been sporadically introduced from the North American continent.

[1] Synopsis der Mitteleuropaischen Flora ii[2]. 289 (1904).

[2] Die nordeuropaischen Formen von *Scirpus* (*Heleocharis*) *paluster* L., Acta. Soc. Fauna et Flora Fennica xxiii, no. 7: 1–16, 2 pl. (1902).

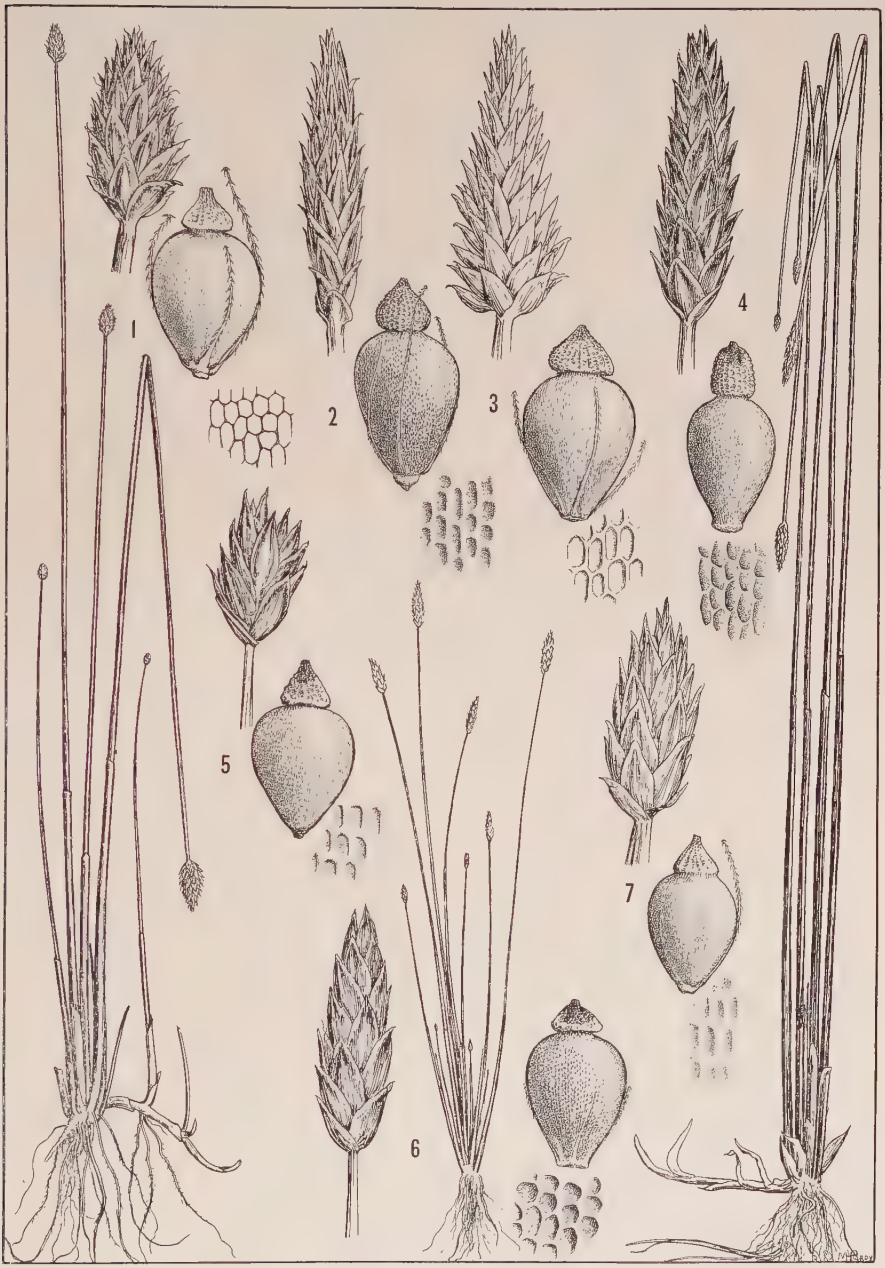
[3] Bull. Soc. Bot. Genève, ser. 2, xiii. 245–265, 4 figs. (1921).

The European *E. mamillata*[1] seems to be well represented in France (Haute Saone, *Bonati* (B)). It probably has earlier names. To me *E. macrostachya* and *E. mamillata* do not appear to be identical, *E. macrostachya* having much firmer scales and a mucronate or submucronate sheath-apex, as well as the following differences in achenes:

E. MAMILLATA	E. MACROSTACHYA
Achenes average 2.1 mm. x 1.1 mm., rather compressed, dull yellow, conspicuously cellular. Tubercle broad and scarcely constricted. Bristle-teeth coarse.	Achenes average 1.8 mm. x 1.0 mm., glistening yellow, smooth, with "lemon rind" texture. Tubercle narrow, with constricted neck. Bristle-teeth slender.

E. macrostachya was fortunately based on excellent specimens around which the western material can be aligned. I have seen a wealth of herbarium material which falls naturally into about a dozen recognizable but intergrading races showing varied shape, color and rigidity of spikelets [cf. PL. 547]. The hardened, twisted culms of the Mexican *E. xyridiformis*—which I believe to be one of these races—can be traced northward into Arizona and to the Uinta Basin of Utah. Northeastward it passes directly into typical *E. macrostachya* of the Oklahoma region, and into a spiralling plant with less-hardened culms characteristic of western Missouri and Kansas, then merges into a soft-culmed phase in Missouri which outwardly resembles *E. mamillata* of Europe. In Mexico, *E. xyridiformis* fades out into softer plants of homogeneous texture but with variously colored spikelets, one type merging at the Texas border into a marked race with long-acuminate pale spikelets. The abundant specimens from the Great Plains of Wyoming represent a combination of these characters, to be expected in the geographical center of the species. This transition passes northwestwardly into short-headed plants of eastern Oregon and eastern Washington with hard purple-margined scales; to the southwest into a similar form with acuminate scales characteristic of the Uinta Basin; southeast to typical *E. macrostachya;* northward in the mountains of Montana to a soft-culmed phase reaching its climax in the region of Glacier Lake and with difficulty, if at all, separable from *E. palustris.* In middle and southern California the culms tend to be

[1] The three species involved are:
56. E. PALUSTRIS (L.) R. & S. [PL. 542, FIGS. 1, 2; PL. 547, FIGS. 9, 10, 14, 15, 19, 21; MAP 64]; Fernald & Brackett, RHODORA XXXI. 59 (1929).
57. E. MAMILLATA Lindb. f. [PL. 542, FIGS. 3, 7; PL. 547, FIGS. 4, 8]; Fernald & Brackett, RHODORA XXXI. 66 (1929).
58. E. MACROSTACHYA Britton in Small, Fl. Se. U. S. 184, 1327 (1903) [PL. 547, FIGS. 3, 7, 11, 13, 17, 18, 20; MAP 67]. *E. xyridiformis* Fernald & Brackett, RHODORA XXXI. 76 (1929) [PL. 547, FIGS. 12, 16].



Eleocharis, subseries Palustres (habit × ½, spikelets × 2½, achenes × 10). Figs. 1, 2, E. palustris. Figs. 3, 7, E. mamillata. Figs. 4–6, E. uniglumis.

Eleocharis (habit × ½, spikelets × 2½, achenes × 10). Fig. 1, E. Savatieri. Fig. 2, E. Dregeana. Fig. 3, E. limosa. Fig. 4, E. debilis. Fig. 5, E. marginulata.

tall and flattened (as in *E. mamillata*) with many-flowered, often elongated, somewhat distichous spikelets, the extreme phase constituting *E. perlonga* Fernald & Brackett.

Along the seacoast from British Columbia to California, *E. macrostachya* passes into large black-spiked plants, frequently uniglumate, and often identified as *E. uniglumis*. The large-headed, occasionally uniglumate, plants from the Canadian Great Plains, represented by *Macoun* nos. 5 (G), 50 (NY), and 300 (G), offer a similar problem; likewise they are involved with *E. palustris*. In many respects the *Macoun* collections are similar to the remarkable plants collected by Dr. Fassett (no. 16739) from a lake-shore at Drummond, Wisconsin; and to Ehler's no. 2763 (Catholic Univ.) from Mackinac County, Michigan, a specimen, however, with the characteristically terete culms of *E. palustris*.

It may be mentioned here, to show the unstable grounds for species determination in this group, that western material of *E. palustris* [cf. MAP 64] has been determined by me almost solely on the character of rigid inflated culms; *E. calva* wholly as slender plants with uniglumate spikelets. *E. palustris* in eastern North America is ordinarily characterized by hardened, terete culms, and ovate spikelets with soft hyaline-tipped scales. But plants with soft flattened culms are occasional, for example *Wiegand* & *Hotchkiss* no. 27521 and *Fernald* & *Wiegand* no. 27520 from Newfoundland. Some specimens (especially *Fernald* & *Wiegand* no. 4698, *Wiegand* & *Hotchkiss* no. 27521, and *Fernald* & *Wiegand* no. 27520) have unusually narrow tubercles, but similar plants (cf. *Fernald* & *Long* in *Pl. Exsic. Gray.* no. 437) from Nova Scotia, have tubercles broader than high.

The *Palustris* group appears to be equally complex in Asia, and I can merely cite the following additional species from eastern Europe and Siberia, included by Zinserling,[1] Flora U. S. S. R. iii. 75–90 (1935), with illustrations, and with Latin descriptions in the addenda:

BIGLUMES:

H. ussuriensis, *H. leptostylopodiata*, and *H. intersita* (p. 581); *H. crassa* Fisch. & Mey., *H. globularis* (p. 582); *H. kasakstanica*, *H. carinata*, *H. turcomanica* (p. 583); *H. argyrolepidoides* (p. 584); *H. equisetiformis* (Meinsh.) B. Fedtsch. (p. 72, 80).

[1] For the opportunity of seeing cotypes of many of these species I am greatly indebted to Dr. V. Lubimenko, Director of the Herbarium at Leningrad.

Uniglumes:

H. eu-uniglumis (p. 584); *H. transcaucasica*, *H. Klingei* (Meinsh.) *B. Fedtsch.* (p. 585); *H. multiseta*, *H. septentrionalis*, *H. oxylepis* (Meinsh.) B. Fedtsch., *H. scythica* (P. 586); *H. fennica* Palla (p. 587) (including var. *sareptana*); *H. paucidentata*, *H. Komarovii*, *H. Korshinskyana* (p. 588).

In South America, the *Palustris* group is represented in Argentina, as might be expected, by *E. macrostachya*, illustrated (as *E. palustris*) by Barros, Anales Mus. Hist. Nat. Buenos Aires xxxiv. 443, fig. 8 (1928). One collection, *O. Kuntze* no. 32 (NY), closely duplicates the *perlonga* phase of Texas. The following specimens are cited: Argentina: Prov. Santiago del Estero, *Venturi* no. 5631 (B, G, US); General Roca, Rio Negro, *W. Fischer* no. 160 (G, NY); Alrededores de La Plata, *Cabrera* nos. 1697 (G), 1795 (G). Uruguay: Barra Santa Lucia, *Osten* no. 22713 (B, G). In Patagonia, the Falkland Islands and Chile, the dark-spiked *E. melanostachys* apparently represents the Antarctic element, perhaps identical with *E. neo-zeylandica*, and with achenes somewhat similar to those of *E. Dregeana*.

59. E. neo-zeylandica C. B. Clarke ex T. Kirk, Trans. N. Z. Inst. xxvi. 260 (1894); Cheeseman, Man. N. Z. Fl. 768 (1906); Clarke, Ill. Cyp. t. xxxvi. fig. 10–14 (1909).

E. neo-zeylandica, represented at Kew by Kirk's nos. 1005 and 1248 from Cape Farewell, has inflated sheaths, shiny golden-brown, lightly reticulate achenes 2 mm. long, with unusually small tubercles.

60. E. melanostachys (d'Urville) C. B. Clarke. *Culms usually inflated*, 0.5–6 dm. high, 1–3 mm. wide in dried material, *the surface often roughened by minute internal prominences:* sheaths inflated, often acute to submucronate at the apex: spikelets usually acute, 0.5–2.0 cm. long: scales loosely appressed, *purplish-brown to castaneous* with prominently hyaline tips, often with greenish midrib, the *lowermost frequently striate-pallid:* stamens 3, anthers 2.5 mm. long: style 2-fid: achene obovate, 2.0–2.5 mm. long, lemon yellow, becoming dark lucid brown when mature, lightly reticulate: style-base small, ¼ *as wide as achene*, conic, often as broad as high: bristles equalling the achene, frequently rudimentary or lacking.—Engler, Bot. Jahrb. xxx, Beibl. 68: 20 (1901); Macloskie, Fl. Patagonia viii (suppl.). 67 (1914) (as *H. megalostachys*); Barros (l. c.) 441, fig. 7 (1928). *Scirpus melanostachys* d'Urville, Mém. Soc. Linn. Paris iv. 600 (1826). *Fimbristylis melanostachys* Brongn. in Duperry, Voy. Coquille Bot. 181 (1829); Steudel, Syn. Cyp. 107 (1855). *Isolepis heteromorpha* Steud. Syn. Cyp. 100 (1855). *H. macrorrhiza* Boeckl. Flora xli. 413 (1858). *H. valdiviana* R. A. Philippi, Linnaea xxix. 77 (1857–58). *H. litoralis* Philippi (l. c.). ? *H. melanocarpa* Philippi and *H. appendiculata*

Philippi (op. cit.) 85 (1857–58). *Scirpus heteromorphus* F. Phil. Cat. Pl. Chil. 311 (1881). *E. simulans*[1] Clarke (l. c.) and Ill. Cyp. t. xxxvi, figs. 19–24 (1909). *H. funebris* Speg. Anales Mus. Hist. Nat. Buenos Aires vii. 177 (1902).—Specimens examined: FALKLAND IDS.: *J. D. Hooker* (K); *d'Urville* (Paris) (TYPE of *Scirpus melanostachys:* culms 3–6 cm. high; scales dark brown to black). ARGENTINA: Posadas, Terr. Santa Cruz, *Donat* no. 261 (G, NY). CHILE: Santiago, *Philippi* no. 1879 (Paris) (as *E. appendiculata:* culms scarcely 1 mm. wide; spikelets acute); Santiago, *Philippi* no. 704 (Stockholm) (as *E. appendiculata:* culms slender; sheath-apex cartilaginous, but not apiculate); Corral, *Philippi* no. 642 (Stockholm) (as *E. litoralis:* culms only 4–8 cm. high; scales dark brown); *Philippi* (Berlin) (*E. valdiviana*, similar to *E. heteromorpha*); Valdivia, *Gunckel* no. 2743 (G); Valparaiso, *Jaffuel* nos. 778 (G), 794 (G); Valle de Marga-Marga, Prov. Aconagua, Coast Ranges (lat. 33° 10′ S.) *Jaffuel* & *Pirion* nos. 1433 (G), 3133 (G); Santiago, *Montero* no. 558 (G) and *G. T. Hastings* no. 362 (NY); Prov. Cautin, *Montero* nos. 1993 (G), 2448 (G); Conception, *Jaffuel* no. 2956 (G). PERU: vic. Cuzco, alt. 3600 m., *A. S. Hitchcock* no. 22555 (NY) (perhaps *E. macrostachya*).

61. E. DREGEANA Steud. (PL. 543, FIG. 2). Rhizome coarse and elongate; culm soft, striate, sometimes with minute cellular prominences, 1–3 dm. high, 1–3 mm. wide; sheaths castaneous, loose, the apex somewhat inflated and quickly marcescent-lacerate: spikelets lanceolate, 1–1.5 cm. long, acute, *many-flowered:* the scales obtuse to subacute, castaneous, often with darker margins: stamens 3; anthers 1.3 mm. long: style 2-fid: achene ovate, convex, 1.7 x 1.0 mm., light brown, smooth: style-base yellow, *mucroniform, ¼ – ⅓ the length of the achene-body:* bristles shining brown, with short teeth.—Syn. Cyp. 78 (1855). *E. palustris* sensu C. B. Clarke in Thistleton-Dyer, Fl. Capensis vii. 198 (1898). *Limnochloa capensis* Nees, Linnaea x. 185 (1836) (acc. to Clarke, l. c.). *E. capensis* Nees ex Boeckl. Linnaea xxxvi. 467 (1869–70) (in synonymy).—SOUTH AFRICA: Ongeluk, Griqualand, Jan. 1, 1813, *Burchell* no. 2649 (G, K); Bruintjes Hoogte, Somerset Div., *Burchell* no. 3046 (K); Stylkloof, near Richmond, 4000–5000 ft., *Drège* in 1840 (K); sine loc., *Lehmann* (NY) (as *E. limosa*); *Drège* (Paris) (TYPE of *E. Dregeana*).

The achenes of this plant are of approximately the same size and texture as those of *E. calva* of eastern United States.

62. E. MITRACARPA Steud. Culms usually coarse and spongy, striate, thin and flattened when dry, 1–4 mm. wide: *sheaths loose, purple or reddish-brown at base, the apex truncate, subinflated* and often marcescent: spikelets oblong-lanceolate, subacute, many-flowered: scales castaneous, with subacute hyaline apex, often with green mid-

[1] Cf. RHODORA xxxvi. 385 (1934). Pfeiffer, Herbarium no. 56. p. 54, has taken up the name *H. andina*, based on *Scirpus andinus* Phil. Anal. Univ. Chil. 1873, 554 (1873), in place of *E. simulans*.

rib and darker sides, the lowest not amplexicaule: stamens 3, anthers 2.0–3.0 mm. long: style 2-fid: achene obovate, biconvex, 1.5–2.0 mm. long, dull yellow, smooth: style-base gray, *mitriform*, *¼ as long as achene-body*, usually thickened at base and cellular-hispidulous under magnification; bristles lightly tinged with brown, equaling the achene.—Syn. Cyp. 77 (1855). *E. palustris* var. ε. *humilis* Nees in Wight, Contrib. Bot. Ind. 113 (1834).—Persia to Japan, Kamtchatka. Persia: prope ruinas, Persepolis, *Kotschy* no. 390 (type, Paris). Afghanistan: hb. *Griffith* nos. 6236 (NY), 6237 (NY) & 6238 (NY); Kurrum Valley, *Aitchison* in 1879 (partim, G). India: Ind. bor. occ. *Thomson* (G, NY, Paris); Punjab, *Thomson* (G) (as *E. compacta*); Sersa, Punjab, 800 ft., *Koelz* nos. 1598 (NY), 1599 (NY); Sind, *Pinwill* (NY); Rawalpindi, n. w. India, *Stewart* no. 7060 (NY); Gurdaspur near Beas River, Punjab, *Stewart* no. 1326 (NY); Shalimar, Kashmir, 5000 ft., *Stewart* no. 3232 (NY); Katrain, Punjab, 5000 ft., *Koelz* nos. 1907 (NY), 1644 (NY); Dharmsala, Punjab, 4000 ft., *Stewart* no. 1864 (NY); Lahul, Himalaya, *Koelz* no. 605 (NY); Sikkim, 9–10,000 ft., *Hooker* (G). China: Yunnan, *Ducloux* no. 250; Mengtse, Yunnan, *A. Henry* no. 10862 (NY); Tsingtao, Shantung, *Chiao* no. 2483 (NY); Kweichow, 400 m., *Tsiang* no. 4867 (NY); Peiping, *Liou* no. 6997 (NY); Ning-wu-Hsien, N. Shansi, 5400 ft., *Tang* no. 1296 (NY); Gehol, Mongolia orientale, *David* in 1864 (Paris). Japan: Hokkaido, *Tanaka* no. 167 (NY). Russia: Savoiko, Kamtchatka australis, *Hultén* in 1928 (NY); Mt. Palorinaja, Kamtchatka, *Everdam* (G). The following Japanese specimens (issued as *E. pileata*) are apparently the same, except for lack of red color in sheaths: Sapporo, hb. *Agric. College* (sine coll.) in 1878 (G); Sapporo, *Arimoto* in 1903 (G); Musashi, *Sakuraj* no. 47 (G).

In India, plants of the *Palustris*-group appear singularly homogeneous, characterized by inflated sheaths, striate culms, firm yellow achenes and a broad, almost orbicular, grayish tubercle. The filament-bases or receptacular part of the achene are as a rule prominently dark-purple. The species ranges from dwarf rigid-culmed plants (cf. *A. Henry* no. 10862 from Yunnan, and some of *Thomson's* collections from the Punjab) to tall plants with soft wide culms (cf. *Koelz* no. 1599 from the Punjab). Spikelets vary in color from nearly white (cf. hb. *Griffith* no. 6238 from Afghanistan, which is an exact match for *Meffert-Abramowitz* no. 572 from Turcoman, issued as *E. argyrolepis*) to dark chocolate-brown (as in *Koelz* no. 1644). The species extends eastward through China and Japan without obvious alteration.

63. E. Savatieri C. B. Clarke (pl. 543, fig. 1). Culms slender, erect, 4–6 dm. long, 0.5–1.0 mm. broad, glistening grayish-green, compressed when dry, obscurely striate: sheaths 6–8 cm. long, bright chestnut to reddish brown, with brown-margined acute apex: spike-

lets elliptic, subacute, 8–12 mm. long, loosely 15–25-flowered: scales soft, obtuse to acute, not keeled, reddish-castaneous striolate, the lowest amplexicaul: stamens 3: style 3-fid: achene elliptic, the castaneous body 1 mm. long, lenticular, broadly obovate, lightly reticulate; style-base elongate-mitriform, 2 mm. long, as wide as the achene-body, strongly inflated-cellular; bristles none.—Kew Bull. Add. Ser. viii. 21 (1908) and Ill. Cyp. t. xxxvi. figs. 15–18 (1909). *Scirpus mitratus* Franch. & Savat. Enum. Pl. Jap. ii. 111, 544 (1879).—JAPAN: in uliginosis, Yokoska, *Savatier* (Paris, TYPE coll.); Yesan, *Fauri* no. 7536 (Paris) (spikelets darker and with firmer scales).

This species, as Franchet & Savatier point out (p. 111), is well differentiated from *Scirpus pileatus* A. Gray, by the presence of a tubercle *twice* as long as the achene-body (as in Clarke's illustration), and by the complete absence of bristles. The illustration is from the type collection of *Scirpus mitratus*, which I have borrowed among other specimens from Paris, through the kindness of Professor Gagnepain.

PALUSTRES (eastern North America)

64. E. CALVA Torr. [PL. 547, FIGS. 1, 5; MAP 65]; Fernald & Brackett, RHODORA xxxi. 68 (1929). *E. erythropoda* Steud. Syn. Cyp. 76 (1855).

E. calva seems to be characteristic of the marl and limestone areas of New York and New Jersey, being almost unknown from eastern New England, and represented by only a single collection from Long Island: Woodside, *Ferguson* no. 4997 (NY). Culms and spikelets are usually slender and elongated; the achenes are small and of fairly constant size, averaging 1.7 x 1.0 mm. in typical specimens. In eastern United States this plant appears to be perfectly distinct and offers no difficulty in identification.

E. Bacothryon Schultes, Mant. ii. 92 (1824) was based on *Scirpus* no. 6, Muhl. Gram. 29 (1817), [incorrectly cited as no. 7 by Torrey], and *E. Muhlenbergiana* Schultes, op. cit., p. 74, was similarly described from Muhlenberg's *Scirpus* no. 4. These numbers I could find neither in Muhlenberg's herbarium at Philadelphia, nor in Willdenow's at Berlin; therefore, since they were inadequately described, both names should be rejected. *Scirpus* no. 7 in hb. Willd. is a very young plant of *E. calva;* in hb. Muhlenberg it is *E. tuberculosa.*

65. E. SMALLII Britton [PL. 547, FIGS. 2, 6; MAP 66]; Fernald & Brackett, l. c., p. 64.

The TYPE of *E. Smallii* (from Harrisburg, Pennsylvania) has rigid swollen culms. This phase, which perhaps reaches its extreme in

Deam's no. 49387 from Bear Lake, Noble County, Indiana (culms 5 mm. wide in dried specimen, *not* flattened) has acuminate spikelets with appressed scales. The type collection of *E. Smallii* is probably pathogenic to some extent, since relatively few of the scales bear mature achenes, and in these the tubercles are swollen and not normal. *Eleocharis* is susceptible to smuts and other fungous diseases resulting especially in slight distortions of the style-base (tubercle), often not obvious to the general botanist. More than one species, in my estimation, has been described on the basis of such pathogenic distortions. In the *Palustres* special care must be observed when it is obvious that fifty percent or more of the achenes fail to mature; even in healthy material the tubercles may be extremely variable (cf. pl. 547, figs. 18, 21). *E. Smallii* is fairly easily recognized by its rigid texture, obvious in the stiff acuminate scales and the hardened character of the sheaths, which are usually black at the apex, with a prominently darkened V-shaped sinus. The achenes average 2.0 x 1.1 mm. It is the prominent and only common species of the *Palustres* in fresh-water ponds of southern New England.

66. E. ambigens Fernald, Rhodora xxxvii. 394, t. 387, figs. 1–8 (1935).

The description of *E. ambigens* by Professor Fernald clears up also the puzzling citations of *E. compressa* (*E. acuminata*) from Louisiana.[1]

Additional citations: Maryland: sea beaches, eastern shore, *Canby* (NY). Virginia: river swamps, Munden, *Mackenzie* no. 1828 (NY); damp location in mixed woods, n. e. of Williamsburg, *E. J. Grimes* no. 3708 (NY). Florida: *Chapman* (NY). Florida or Georgia, *Croom* in 1836 (NY). Louisiana: New Orleans, *R. S. Cocks* no. 1555 (G); *J. Hale* (G, NY) (as *E. acuminata*); Opelousas, *Wm. Carpenter* (NY); Morgan City, *Svihla* in 1926 (NY).

E. nervosa Kuekenthal,[2] perhaps the same as *E. ambigens*, is far too immature for identification. Two collections of the *Palustres* are also known from Porto Rico:

66a. E. fallax Weatherby, Rhodora xxiv. 23 (1922); Svenson, Rhodora xxxiv. 225 (1932).

67. E. halophila (Fernald & Brackett) Fernald & Brackett, Rhodora xxxvii. 395, t. 387, figs. 12–14 (1935). *E. uniglumis* var. *halophila* Fernald & Brackett, Rhodora xxxi. 72, t. 183, figs. 17–26 (1929).—Along the seacoast from the Gulf of St. Lawrence to Virginia.

[1] Britton, Journ. N. Y. Microsc. Soc. v. 109 (1889), the *Hale* specimen being given an unpublished name by Dr. Britton.

[2] Fedde, Rep. Spec. Nov. xxiii. 192 (1926) based on *Ekman* no. 18543 from Cuba: Lagua la Grande, in swamps that surround the limestone hills at Chinchila (type S; cotype NY).

68. E. UNIGLUMIS (Link) Schultes [PL. 542, FIGS. 4–6]; Fernald & Brackett, RHODORA xxxi. 71, t. 183, fig. 31 (1929); Fernald, RHODORA xxxvii. 395, t. 387, figs. 9–11 (1935).—*E. uniglumis* reaches its southern limit in eastern America on the mountains of Newfoundland.

69. E. KAMTSCHATICA (C. A. Meyer) Komorov; Fernald & Brackett, RHODORA xxxi. 75 (1929).

To this species Fernald & Brackett have questionably added (as a synonym) *Scirpus sachalinensis* Meinsh. Acta Hort. Petrop. xviii. 260 (1901). For this Komarov (Acta Hort. Petrop. xxxix. 34 (1923)) has taken up the name *E. Glehni* (*Scirpus Glehni* Meinsh.), published without further reference and apparently a "nomen nudum."

Subseries: TRUNCATAE (North American Species)

Since the name *E. geniculata* is to be applied to the tropical species with lenticular black achenes and *E. capitata*, as a name, is unavailable (see discussion under the *Maculosae*), *E. tenuis* returns as the familiar name for the plant of northeastern United States. After examining the immature type of *Scirpus tenuis* (*Willdenow* no. 1184), I find it best to maintain it as the equivalent of Clayton's specimen, though there is perhaps a tendency toward the var. *pseudoptera*. *Scirpus ellipticus* Willd. no. 1172, sent by Muhlenberg to Willdenow, consists of three immature culms of what I have called *E. capitata* var. *borealis*,[1] and a nondescript culm of an allied plant. At Berlin, the name *Scirpus ellipticus* was in general early use for this northern plant, which, in its shallow achene-pitting and other characters, is probably closer to *E. compressa* than to *E. tenuis*. In view of this taxonomic difficulty, and to avoid a new combination, I am recognizing *E. elliptica*.

70. E. ELLIPTICA Kunth, Enum. ii. 146 (1837) [MAP 29]; Steudel, Syn. Cyp. 76 (1855). *Scirpus ellipticus* Willd. ex Kunth, Enum. ii. 146 (1837) (as synonym). *E. capitata* var. *borealis* Svenson, RHODORA. xxxiv. 200 (1932).

71. E. TENUIS (Willd.) Schultes [MAP 33]. *E. capitata* var. *typica* Svenson, RHODORA xxxiv. 199, t. 219, figs. 56, 57; t. 221, figs. 1, 13 (1932).—Additional citations: WEST VIRGINIA: Morgantown, *Millspaugh* no. 219 (NY); Pickens, Randolph Co., *H. H. Smith* no. 1354 (Wisc). NORTH CAROLINA: many collections in hb. Duke Univ. SOUTH CAROLINA: Hartsville, *J. B. Norton* in 1921 (NY); Charleston, *Beyrich* (Cal. Acad.).

E. TENUIS var. **pseudoptera** (Weatherby) n. comb. [MAP 30]. *E. capitata* var. *pseudoptera* Weatherby in Svenson, RHODORA xxxiv. 202, t. 221, figs. 3, 16 (1932).

[1] RHODORA xxxiv. 200, t. 219, figs. 58, 59; t. 221. figs. 4, 15 (1932).

This variety, of wider range than I had previously suspected, is abundant on western Long Island and on Staten Island. In western New Jersey it is found in meadows with *Castilleja* and *Thalictrum revolutum* and extends southward along the mountains to Tennessee (Fountain City, *J. K. Underwood* in 1920 (B)).

E. TENUIS var. **verrucosa** (Svenson), n. comb. [MAP 32]. *E. capitata* var. *verrucosa* Svenson in RHODORA, xxxiv. 202 (1932).—Extends southward to LOUISIANA: Lake Charles, *Plank* in 1892 (NY); Acadia Parish, *R. M. Harper* no. 3469 (B) and TEXAS: Houston, *E. Hall* in 1872 (NY); and occurs in Virginia (cf. Fernald in RHODORA, xl. 391 (1938).

72. E. COMPRESSA Sull. [MAP 31]; Svenson, RHODORA xxxiv. 215, t. 219, figs. 62, 63; t. 221, figs. 5, 6, 18 (1932).—Noteworthy additions: NEW JERSEY: Dingmans, *K. K. Mackenzie* in 1920 (NY). WEST VIRGINIA: Fayette Co., *L. W. Nuttall* (Duke). ALABAMA: Monte Sano, Huntsville, *R. M. Harper* no. 3405a (B). TEXAS: Dallas, *Reverchon* no. 3595 (NY). NORTH DAKOTA: Custer, *Rydberg* no. 1074 (NY). COLORADO: Mt. Lincoln, *Coulter* in 1873 (NY); Salida, *M. A. Carleton* no. 553 (NY); La Veta, *Rydberg* & *Vreeland* no. 6473 (NY).

73. E. NITIDA Fernald; Svenson, RHODORA xxxiv. 203, t. 219, figs. 54, 55 (1932).

74. E. ACUTISQUAMATA Buckley; Svenson, RHODORA xxxiv. 218, t. 219, figs. 60, 61; t. 220, fig. 7 (1932).

75. E. TRICOSTATA Torr. [MAP 42]; Svenson, RHODORA xxxiv. 219, t. 220, figs. 77, 78 (1932).—SOUTH CAROLINA: boggy places, Santee Canal, *Ravenel* (NY); cane savanna, Sumter Co., *W. Stone* no. 383 (NY).

75a. E. CYLINDRICA Buckley; Svenson, RHODORA xxxix. 265, t. 464, fig. 5 (1937).

76. E. BOLANDERI A. Gray [MAP 35]; Svenson, RHODORA xxxiv. 224, t. 220, figs. 68, 69 (1932).—UTAH: Moon Lake, Uinta Basin, 8100 ft., *Graham* no. 9318 (Carnegie Mus.). COLORADO: Dolores [Montezuma Co.], 7000 ft. *C. S. Crandall* in 1892 (NY).

77. E. PALMERI Svenson, RHODORA xxxiv. 223, figs. 73, 74; (1932).

78. E. DECUMBENS Clarke; Svenson, RHODORA xxxiv. 224, t. 219, figs. 52, 53 (1932).

79. E. PARISHII Britton [MAP 34]; Svenson, RHODORA xxxiv. 221, t. 220, figs. 66, 67; t. 221, fig. 12 (1932).—Additional citations: NEW MEXICO: Las Vegas, *Plank* in 1895 (NY); Mesilla Valley, *Standley* no. 410 (NY). ARIZONA: Colley's Ranch, *Gooding* no. 1113 (NY). OREGON: Riddle, Douglas County, *Peck* no. 7030 (NY). CALIFORNIA: Mission Creek, Riverside County, *J. T. Howell* no. 2878 (Cal); Panamint Mts., Inyo Co., alt. 3500 ft., *J. T. Howell* no. 4055 (Cal); alkaline flats, Lancaster, Los Angeles County, *J. T. Howell* no. 4894 (Cal); Mission Pine, San Rafael Mts., alt. 6000 ft., *Hoffmann* in 1930

(Cal); Santa Isabel, San Diego Co., *Wolf* no. 2245 (Cal); Clear Creek, Butte County, *H. E. Brown* no. 137 (NY); San Benito County, *R. S. Ferris* no. 6870 (NY); Trinity Center, Trinity County, *J. T. Howell* no. 12692 (NY); Siskiyou County, *L. C. Wheeler* nos. 3230 (B), 2915 (B), 2626 (B).

E. Parishii, which seems to be a derivative of *E. Dombeyana*, is not confined to desert areas, as I previously intimated, but occurs up to 6000 ft. in mountain meadows.

80. E. INTERMEDIA (Muhl.) Schultes. *E. reclinata* Kunth; Svenson, RHODORA xxxix. 262 (1937).—TENNESSEE: sandy bed of stream, Cedar Creek, Morris Lake Basin, Campbell Co., *J. K. Underwood* (B).

As Professor Fernald has kindly pointed out to me, the previous homonyms of *Scirpus intermedius* do not invalidate the use of the name *intermedia* under *Eleocharis*, provided a legitimate name under *Eleocharis* was not available before Schultes' transfer (1824). Thus in the International Rules of Botanical Nomenclature (1935), Article 69, "Where a new epithet is required, an author may, if he wishes, adopt an epithet previously given to the group in an illegitimate combination, if there is no obstacle to its employment in the new position or sense." "The combination *Talinum polyandrum* Hook. (in Bot. Mag. t. 4833: 1855) is illegitimate, being a later homonym of *T. polyandrum* Ruiz et Pav. (Syst. Fl. Per. 1, 115: 1798): when Bentham transferred *T. polyandrum* Hook. to *Calandrinia*, he called it *Calandrinia polyandra* Fl. Austral. 1, 172: 1863). This is treated, not as a new combination, but as a new name, *C. polyandra* Benth. (1863)."

81. E. MACOUNII Fernald; Svenson, RHODORA xxxix. 265 (1937).

Subseries: TRUNCATAE

KEY TO SOUTH AMERICAN SPECIES

a. Spikelets linear-lanceolate; scales black; style-base mucroniform . . . . . 82. *E. Dombeyana.*
a. Spikelets obtuse; achenes prominently reticulate with conic to depressed-pyramidal style-base . . . . *b.*
  b. Style-base with lobes decurrent on angles of achene
    Rhizome coarse, subterranean; achenes greenish-yellow (Andes) . . . . . 83. *E. crinalis.*
    Rhizome slender, achenes golden-brown . . . . . 84. *E. Rabenii.*
  b. Style-base not decurrent
    c. Dwarf, 3–6-flowered Andean species with black scales; style-base pyramidal . . . . . 85. *E. albibracteata.*
    c. Many-flowered lowland species with brown scales; style-base conical . . . . . 86. *E. montevidensis.*

82. E. DOMBEYANA Kunth, Enum. ii. 145 (1837) [MAP 39]. *E. montana* sensu Svenson, RHODORA xxxiv. 222 (1932), not (HBK) R.

& S. *Chaetocyperus stoloniferus* Nees, Linnaea xix. 695 (1847). *E. truncata* Schlecht. Bot. Zeitung vii. 118 (1849); Steud. Syn. Cyp. 77 (1855). *E. bivaginata* Steud. Syn. Cyp. 77 (1855). *Limnochloa truncata* Liebm. Vidensk. Selskr. Skr. V, ii. 244 (1851). *E. stolonifera* Boeckl. Linnaea xxxvi. 424 (1869–70).

E. Dombeyana may prove to be a plant as local and as misunderstood as *E. montana*, but I am including here, possibly incorrectly, all the material with smooth achenes (under high magnification) and mucroniform style-base. The TYPE (Berlin, *Kunth* no. 3210), based on Dombey's collection from Peru (ex. Mus. Paris) I have not seen exactly duplicated, nor is the locality of collection known. Dombey's plant has slender rhizomes and elongate culms (3 dm. high and nearly 1 mm. wide), bearing acute spikelets (8 mm. long) with dark brown to nearly black scales. The achenes are 1.3 mm. long, golden-yellow to brown, smooth under magnification, trigonous with blunt outer angle, and have a crown-shaped trigonous style-base. This specimen is exceptionally large and the achenes have a peculiar low style-base, but in Dombey's similar specimen at Paris, the style-base tends to be elongated. Should further collections in Peru show *E. Dombeyana* to be distinct, the name to be taken up for the common Mexican-Andean plant would be *E. stolonifera*. The TYPE (*Aschenborn*, hb. *Nees* no. 1737) (Berlin) consists of plants only 6 cm. high, which bear the indefinite locality "Mexico." For *E. truncata*, also from Mexico, two citations are given by Schlectendal: Mineral del Monte (*Ehrenberg*) and *Berlandier* no. 365 (sine loc.). I have not seen these collections, but from description, I believe *E. truncata* is the same as *E. stolonifera*.

Additional citations of *E. Dombeyana:* MEXICO: Morales, San Louis Potosi, *Schaffner* nos. 212 (NY), 577 (NY); *Liebmann* (as *Limnochloa truncata*) (NY); Morelia, Michoacan, 2000 m., *Arsène* no. 2720 (NY). GUATEMALA: Santa Elena, Chimaltenango, 2400–2700 m., *Skutch* no. 419 (NY); San Miguel Uspantan, Quiché, 6000 ft., *Heyde & Lux* no. 3554 (NY). ECUADOR: Ambato, Prov. Tungurahua, *Pachano* no. 110 (NY). ARGENTINA: Sierra Grande, 2200 m., Cordoba, *Burkart* no. 7144 (G); Sierra de San Luis, *Kurtz* no. 8516 (NY); Tilcara, Jujuy, *Venturi* no. 7269 (US, B); Dept. Capital, Tucuman, *Venturi* no. 2276 (US, B); Chigligasta, Tucuman, *Venturi* no. 4753 (G). Without loc.: hb. *d'Urville* (Paris, TYPE of *E. bivaginata*).

My previous Peruvian citations from the Wilkes Expedition should read "Obrajillo" and "Casa Cancha," respectively. Both localities are in the mountains northeast of Callao.

83. E. CRINALIS (Griseb.) Clarke (PL. 544, FIG. 2). MAP 41. Culms *filiform, in dense fascicles on remote ascending branches of a thickened wide-spreading subterranean rootstock*, 4- or 5-angled, sulcate, 4–20 (rarely to 45 cm. as in type) high: sheaths reddish at base, the tumid ferruginous apex truncate and obscurely apiculate: spikelets ovate to elliptic (8–40-flowered), 3–6 mm. long: scales appressed, firm, scarcely keeled, mostly obtuse, castaneous to ferruginous with a lighter midrib: stamens 3, anthers 1.0 mm. long: style 3-fid: achene (0.8–1.0 mm. long, 0.6 mm. wide) greenish-yellow, striolate-reticulate; style-base brown, *acuminate-pyramidal, with prominent basal margin and concave sides;* bristles light brown, slender, equalling the achene.—Kew Bull. Add. Ser. viii. 23 (1908); Barros, Anales Mus. Hist. Nat. Buenos Aires xxxiv. 470, 490, fig. 23 (1928). *Scirpus crinalis* Griseb. Pl. Lorentz. 217 (1874) and Symb. Fl. Argent. 311 (1879). *E. Brehmeriana* Boeckl. Allg. Bot. Zeit. ii. 33 (1896); Svenson, RHODORA xxxi. 180, pl. 189, fig. 24 (1929). *E. boliviana* Palla ex Svenson, RHODORA l. c. (p. 179).—BOLIVIA: *Mandon* no. 1416 (G, in part) (K, NY) (cotype of *E. Brehmeriana*); La Paz, *Buchtien* nos. 3143 (G, NY), 4482 (TYPE of *E. boliviana*). ARGENTINA: Quebrada del Tala, Catamarca, *Lorentz & Hieronymus* nos. 401 and 448 (Berlin, TYPE); Tilcara, Jujuy, *Venturi* no. 6192 (B, US) (as *E. Chactaria*); San Pedro, Jujuy, *Venturi* no. 9679 (NY, US); Tafi, Tucuman, *Venturi* nos. 4371 (B, US), 7271 (B, G, US); Famailla, Tucuman, *Venturi* no. 6191 (B, US) (as *E. Chactaria*); Sierra del Cajon, Tucuman, *Venturi* no. 4371 (G); Campo Quijano, Salta, *Venturi* no. 9445 (B, G, US) (as *E. Chactaria*), and Guachipas, Salta, *Venturi* no. 9839 (G).

Except for a non-cancellate surface, the achenes of *E. crinalis* resemble those of *E. retroflexa*, with which there has been much confusion in identification. Immature achenes somewhat resemble those of the *Pauciflorae*, in which group I previously and incorrectly placed the plants. *E. crinalis* resembles *E. Rabenii*, but is easily recognized by the brown (not purple) spikelets and coarse rhizomes.

84. E. RABENII Boeckl. (PL. 545, FIG. 3). Perennial, from a *slender, extensively-creeping rhizome bearing appressed purple scales;* culms *capillary, subflexuous*, 8–40 cm. long, quadrangular-sulcate: sheaths purple, appressed, subacute and slightly spreading at the apex: spikelets broadly ovate-lanceolate, *5–8-flowered, 2–3 mm. long:* scales divaricate, ovate, acute, *purplish-brown*, sometimes greenish on the keel: stamens 2; anthers 0.5 mm. long: style 3-fid: achene ovate, trigonous with somewhat costate angles, *lightly cancellate with obscure pitting, brownish-yellow;* style-base pyramidal, acute, dark brown, *trilobed with prominent basal margin;* bristles short, slender, lustrous brown.—Kjoeb. Vidensk. Meddel. 1871: 149 (1871). BRAZIL: without further locality, *Raben* (TYPE, Cop).—URUGUAY: Carrasco, Montevideo, in paludosis dunarum, *Osten* no. 22477 (B).

The type is without rootstocks, and these I have described from a collection given to me by the late Cornelio Ostèn. *E. Rabenii* has the appearance of typical *E. capitata* (*E. tenuis*) as previously treated by me. The achenes of *Osten* no. 22477, being immature, are whitened and smaller than in the type.

85. E. ALBIBRACTEATA Nees & Meyen [MAP 40]; Svenson, RHODORA xxxi. 178 (1929). *E. nubigena* C. B. Clarke; Svenson, RHODORA xxxi. 179 (1929).

The type of *E. albibracteata* (hb. Berlin), from Lake Titicaca, has culms only 3 cm. long. The lowest scale of the spikelet is prominently whitened. Achenes are exactly 1.5 mm. long, golden-yellow with prominently-pitted, reticulate surface, obtuse outer angle, and brown style-base. At Kew the TYPE of *E. nubigena* is annotated by C. B. Clarke as "close to *E.* (*melanocephala*) *albibracteata*, but the mouth of the sheaths will not match, and the apex of the nut is very unusual." In this collection, the achenes (not quite mature) are 1 mm. long, with the three angles of the style-base slightly raised and apiculate. The illustration by Barros of *Lorentz & Hieronymus* no. 65 is identical with mine of *Mandon* no. 1414, both showing achenes evidently not mature. The sheet of *E. melanocephala* Desv. (TYPE, Paris) "Cordillera de Guanta (Coquimbo) . . . 3000 m." consists of ten clumps of specimens, 3–4 cm. tall, with small heads resembling those of *Venturi* no. 9454. In *E. albibracteata* the sheaths are variable, being for the most part inflated at the apex, but sometimes truncate with traces of a mucro. They emphasize the fact that the sheath-apex is not always a good basic character for classification of species in *Eleocharis*.

Additional citations: PERU: alt. 8400 ft., Yura [?], *R. S. Williams* no. 2571 (NY); Cuzco, *A. S. Hitchcock* no. 22493 (NY). ARGENTINA: Tumbaya, Jujuy, 2400 m., *Venturi* no. 6190 (US, B); Tafi, Tucuman, *Venturi* nos. 9454 (US, B) and 9049 (US, B); Chubut, 70° W. 45° S., *Koslowsky* no. 75 (K); Patagonia australis, Terr. Santa Cruz, in ripa lacusculi ad Richmond, *Dusén* no. 5471 (S). CHILE: in Andibus, prov. Coquimbo, *Reed* (K); Valdivia, *Philippi* (K).

The names *E. albibracteata* and *E. Lechleri* are being used indiscriminately for Patagonian and Chilean plants of more spongy texture than seen in typical *E. albibracteata*. These plants have pallid achenes *when mature*, with pitted, sharply-defined reticulation. They probably represent a distinct species, without much doubt already described by Philippi. That they are not *E. Lechleri* is evident from Boeckeler's description of the achene of that species as *testaceous* (i.e. brick-

ELEOCHARIS (habit × ½, spikelets × 2½, achenes × 10). FIG. 1, E. NUDIPES. FIG. 2, E. CRINALIS. FIG. 3, E. VIRIDANS. FIG. 4, E. PACHYCARPA. FIG. 5, E. DUNENSIS.

Eleocharis (habit × ½, spikelets × 2½, achenes × 10). Fig. 1, E. minarum. Fig. 2, E. Glazioviana. Fig. 3, E. Rabenii. Fig. 4, E. Urbani. Fig. 5, E. leucocarpa. Fig. 6, E. glauco-virens. Fig. 7, E. Loefgreniana. Fig. 8, E. chrysocarpa.

colored) and the style-base "*minimo* conico, basi satis dilatate incumbente." Boeckeler's type of *E. Lechleri* consisted of dwarf plants with capillary culms ½–1½ inches high, growing near springs in the Cordillera of Ranco [south of Valdivia], Chile. Some of the specimens cited by me from Johnston's collections, and probably all from Patagonia, belong to the species with pallid achenes, and the following definitely so: CHILE: Nubla, *Pennell* no. 12409 (NY). ARGENTINA: Tehuelches, Terr. Santa Cruz, *Donat* no. 67 (G, NY); Patagonia, 50–53°, *Moreno* & *Tonino* nos. 404 (NY), 405 (NY). (The map also includes stations cited by Barros under *E. albibracteata*).

86. E. MONTEVIDENSIS Kunth, Enum. ii. 144 (1837) [MAP 38]; Steudel, Syn. Cyp. 76 (1855); Barros, Anales Mus. Hist. Nat. Buenos Aires, xxiv. 478, fig. 27 (1928). *Limnochloa montevidensis* Nees in Mart. Fl. Bras. ii[1]. 99 (1842). *E. arenicola* Torr. in Engelm. & Gray, Boston Jour. Nat. Hist. v. 237 (1847); Svenson, RHODORA xxxiv. 219 (1932). *E. montana* sensu Britton in Abrams, Fl. Pacific States i. 266, fig. 636 (1923); not (HBK) R. & S. *H. montana* (HBK) R. & S. ssp. *montevidensis* Osten, Anales Mus. Hist. Nat. Montevideo, ser. 2[a], iii. 183 (1932).—Additional citations: MEXICO: Tecate River, Lower California, *Mearns* no. 3786 (NY); Ensenada, Baja California, *Wiggins & Demaree* nos. 4750 (NY), 4772 (NY); Vera Cruz, *F. Mueller* no. 2149 (NY); Durango, *E. Palmer* no. 99 in 1896 (NY); in fossis, Guanaxuato, *Hartweg* no. 241 (NY). TEXAS: Dallas, *Reverchon* no. 1004 (NY); Fort Worth, *Ruth* no. 147 (NY); Horseshoe Lake, Jackson Co., *Drushel* no. 9015 (B); Neuces Bay, *Ravenel* no. 70 (NY); Belknap, *S. Hayes* in 1858 (NY); Guadalupe Mts., Culberson Co., *Moore & Steyermark* no. 3508 (B, NY); Mouth of Rio Grande, *Runyon* in 1926 (NY); Strickland Spring, Kinney Co., *Mearns* no. 1363 (NY). N. MEXICO: Ute Park, *Standley* no. 13969 (NY). ARIZONA: Chiricahua Mts., *Goodman & Hitchcock* no. 1219 (B, NY). CALIFORNIA: San Gabriel Mts., Los Angeles Co., *L. C. Wheeler* no. 2592 (B). ARGENTINA: Candelaria, Salta, *Venturi* no. 9486 (G); Dept. Leales, Tucuman, *Venturi* no. 392 (G); Dept. Capital, Tucuman, *Venturi* no. 2276 (B, US); Duraquito, Tucuman, *Venturi* no. 1548 (B, US); Cordoba, *Kneucker* no. 157 (G). URUGUAY: Montevideo, *Humboldt* ex Sellow (TYPE, Berlin, Kunth hb. no. 3205); Montevideo, *Herter* no. 604 (NY); Barra Santa Lucia, San José, *Osten* no. 22309 (B).

The type is identical with *E. arenicola* from Texas.

87. E. NODULOSA (Roth) Schultes; Svenson, RHODORA xxxix. 255 (1937). *E. chrysocarpa* Boeckl. (PL. 545, FIG. 8).

E. NODULOSA var. ANGULATA Svenson [MAP 36]. Perennial from a *thickened, spongy, horizontal rootstock* with prominent ovate scales; culms erect, 0.5–3 dm. high, 1–2 mm. broad, terete, striate, obscurely septate: sheaths reddish, truncate and mucronate at the apex: spike-

lets cylindric, usually *obtuse*, 5–15 mm. long, about 20–50-flowered: scales firm, not appressed, obtuse to somewhat acute, *lustrous purplish-brown*, sometimes with a green midrib: stamens 3 (or 2); anthers 1.3 mm. long: style 3-fid: achene trigonous, obovate, narrowed at the apex, 1.2–1.5 mm. long, *shining olivaceous* (yellowish when immature), striate-reticulate: style-base trigonous, conic-subulate to broadly truncate-apiculate with a raised margin; bristles equalling the achene. —Rhodora xxxix. 258 (1937). *E. montana* (HBK) R. & S. Syst. ii. 153 (1817); Kunth, Enum. ii. 149 (1837). *Scirpus montanus* HBK. Nov. Gen. et Sp. i. 226 (1816). *E. haematolepis* Steud. Syn. Cyp. 79 (1855), e descr. *E. andesica* C. B. Clarke, Kew Bull. Add. Ser. viii. 23 (1908).

The single large plant representing the type of *Scirpus montanus* from Quindiu Pass [opposite Bogota] in the Middle Cordillera of Colombia was divided between Berlin and Paris, the larger part being at Paris. The thickened rootstocks (4 mm. diam.) and culms, and pitted shiny olivaceous achenes are somewhat like *E. subarticulata* (Nees) Boeckl. (*E. Widgrenii* Boeckl.), but its real affinity is with *E. nodulosa*. Unfortunately, in publishing var. *angulata*, I had not the slightest suspicion that it represented the greatly misunderstood *E. montana*, and I have not been able as yet to find the name *montana* used as a *variety*. *Venturi* no. 8837 (G) from Cerro Nogalito, Tucuman, Argentina, closely resembles the type, both in appearance and achenes, but shows outward septation, which is not discernible in the type of *Scirpus montanus*.

Additional citations: Colombia: Las Cruces, Bogota, 2600 m., *Pennell* no. 2169A (NY); ? *Lehmann* no. 8735 (sine loc.); Andes de Bogota, alt. 2,660 m., *Triana* no. 421 (US, cotype of *E. andesica*).

The achene which I examined from the type collection of *Scirpus montanus* was yellowish and not mature, but identical with immature achenes of *Venturi* no. 8837. Duchassaing's specimen from Guatemala (type, Paris) upon which *E. subnodulosa* Steud. was based, is a slender plant with culms 1 mm. wide, septae far apart, and with small yellow trigonous to planoconvex achenes (1.0 mm. long), with constricted apex. *E. contracta* Maury, from description and figure[1] agrees well with it, and should be placed under the synonymy of *E. nodulosa* var. *subnodulosa*.

88. E. Parodii Barros, Anales Mus. Hist. Nat. Buenos Aires xxxiv. 480, fig. 28 (1928); Svenson, Rhodora xxxix. 262 (1937).

Though probably a distinct species, it has much in common (cf.

[1] Mém. Soc. Phys. Genève xxxi. 139, t. 416 (1890).

Barros' illustration) with *Scirpus montanus*, especially the inflated culms which are septate internally, and the peculiar apex of the achene, as well as the strongly mucronate sheath-apex.

89. E. ELEGANS (HBK) R. & S.; *E. geniculata* of auths., not L. (See discussion under *E. geniculata.*)

89a. E. DENSA Benth.; Svenson, RHODORA xxxix. 262 (1937).

Additional species, apparently of this group (*Truncatae*), have been described and illustrated by Barros (op. cit.), but of these I have seen no authentic material. The species are as follows:

90. E. LECHLERI Boeckl.; Barros, p. 470, fig. 22 (right); Svenson, RHODORA xxxi. 181 (1929).

Barros' illustration closely resembles the type of *E. melanocephala* Desv.

91. E. MENDOCINA Philippi, Anal. Univ. Chil. 1873. 553 (1873) and v. 350 (1896); Barros, p. 484, fig. 22 (left).

The figure by Barros is similar to material included by me under *E. Dombeyana* but the achene described by Philippi as "sub lente fortiori tenuissime ruguloso" certainly would not apply to *E. Dombeyana*. *E. mendocina* came from Mendoza Province (Argentina).

92. E. SPEGAZZINII Barros, op. cit., 474, fig. 25 (1928), known from ARGENTINA: Colonia Resistencia, Chaco; and Prov. Formosa (*Joergensen* no. 2940, in part).

It is exceedingly close to, if not identical with, *E. cylindrica* of Texas.

93. E. HAUMANIANA Barros, op. cit., p. 482, fig. 29 (1928); Osten, Anales Mus. Hist. Nat. Montevideo, ser. 2a, iii. 181 (1932).

This species grows with *E. palustris* in marshy places in the vicinity of Buenos Aires and in Uruguay. I should not be surprised if it turned out to be *E. rostellata*, which is already known from Western Argentina (RHODORA, xxxvi. 384 (1934)).

Series 7: TENUISSIMAE

For species (no. 94–119) see RHODORA xxxix, 210–254 (1937). *E. leucocarpa* Boeckl. Kjob. Vedensk. Meddel. 1869. 132 (1870) is illustrated [PL. 545, FIG. 5].

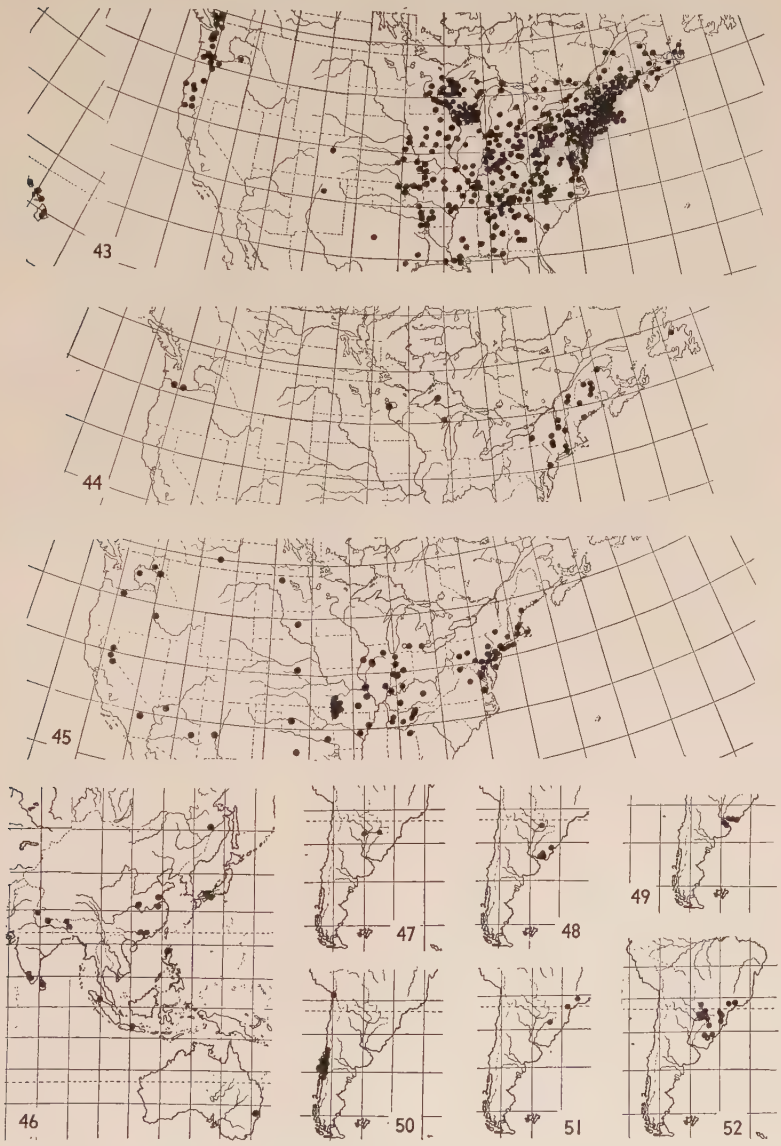
Series 8: SULCATAE

(Achene measurements include the style-base (tubercle))

a. Spikelets large (5–12 mm. long) subglobose to ovoid, scales acute to acuminate ..... 120. *E. nudipes.*
a. Spikelets not subglobose .... *b.*

b. Spikelets obovoid, 5–7 mm. long . . . . . 121. *E. pachystyla.*
b. Spiklets cylindric to ovate, mostly subacute . . . *c.*
c. Culms tuberous-thickened at base, from short lignescent rootstocks . . . . . 122. *E. quinquangularis.*
c. Culms not tuberous-thickened . . . *d.*
d. Scales emarginate
Achenes 0.8–1.0 mm. long; spikelets many-flowered 123. *E. filiculmis.*
Achenes 1.2 mm. long; spikelets 12–20-flowered 125. *E. Loefgreniana.*
d. Scales obtuse to acute; not emarginate . . . *e.*
e. Style-base strongly 3-lobed below . . . *f.*
f. Style-base mitriform; the lobes not decurrent on the body of the subcancellate achene . . . . . 126. *E. dunensis.*
f. Style-base pyramidal the lobes decurrent on the angles of the smooth to reticulate achene
Style-base as wide as the achene; scales purplish-black. Andean . . . . . 128. *E. pachycarpa.*
Style-base narrower than the achene; scales dull brown . . . . . 127. *E. viridans.*
e. Style-base not 3-lobed
Achenes 0.8–1.0 mm. long; spikelets many-flowered 123. *E. filiculmis* (*E. sulcata*).
Achenes 1.2 mm. long; spikelets 5–12-flowered 124. *E. glauco-virens.*

120. E. NUDIPES (Kunth) Palla (PL. 544, FIG. 1). MAP 52. Perennial with coarse knotted ligneous rhizomes; culms stiff, erect, shiny, striate, often twisted, 1.5–6 dm. long, 1 mm. wide: sheaths purplish to stramineous, the apex oblique, firm, apiculate, the mucro often adnate to the cartilaginous surface: spikelets *subglobose, in age becoming broadly ovoid,* obtuse, 5–12 mm. long, *many-flowered:* scales appressed, membranous, oblong-lanceolate, *the subacute to attentuate tips conspicuously whitened,* the lowermost sterile and often spreading: stamens 3, anthers 1.0 mm. long: achene obovate, 1.2 mm. long, trigonous with costulate angles, *pale-stramineous, striate-reticulate:* style-base short, pyramidal, trigonous to lamelliform; bristles none.—Denksch. K. K. Akad. Wissensch. Wien lxxix. 171 (1908). *Isolepis nudipes* Kunth, Enum. ii. 206 (1837); Steud. Syn. Cyp. 100 (1855). *Scirpidium grande* Nees in Mart. Fl. Bras. ii[1]. 97 (1842). *E. grandis* Boeckl. Linnaea xxxvi. 453 (1869–70); C. B. Clarke, Pl. Hassl. 237 (1903) and Ill. Cyp. t. xxxviii. fig. 10–15 (1909); Barros, Anales Mus. Hist. Nat. Buenos Aires xxxiv. 462, fig. 18 (1928); Osten, Anales Mus. Hist. Nat. Montevideo, ser. 2, iii. 178 (1932). *Scirpus nudipes* Griseb. Symb. Fl. Arg. 312 (1879). *H. pachstyla* vars. *macrostachya* and *angustostachya* Pfeiffer, Herbarium 2. 55 (1921).—BRAZIL: *Sellow* no. 183 (Berlin, TYPE of *Isolepis nudipes*); *Sellow* no. 1753 (Berlin, TYPE (?) of *Scirpidium grande*); Rio Janeiro a Minas, *Glaziou* no. 16534 (Berlin). PARANA: Curityba, *Dusén* no. 2332 (G); Juguariahyva, *Dusén* no. 10525 (NY, S); Turma, 800 m., *Dusén* no. 1334a (G). MINAS GERAES: Caldas, *Mosén* no. 1080 (S). RIO GRANDE DO SUL: Povo Novo, *Malme* no. 381 (S); Canoas, pr. Porto Alegre, (sine coll. ?)



Maps 43–52. Map of Eleocharis; 43, obtusa; 44, ovata; 45, Engelmanni; 46, tetraquetra; 47, quinquangularis; 48, viridans; 49, dunensis; 50, pachycarpa; 51, Loefgreniana; 52, nudipes.

(S). Paraguay: Yerbales, reg. flum. Capibary, *Hassler* no. 4436 (G) (as *E. pachystyla*); pr. Itanguá, *Hassler* nos. 1124 (NY), 1062 (NY), 1064 (NY); Capitindu, á l'est de la Cordillère de Villa Rica, *Balansa* no. 122 (S); in altoplanitie, Sierra de Amambay, *Hassler* no. 11354 (Berlin). Uruguay: Tacuarembó (cited by Osten).

This is one of the most remarkable species of *Eleocharis*, easily recognized (at least when young) by the many-flowered nearly globose heads with conspicuous whitened-attenuate scales, of which an unusually large number at the base are sterile. In the Berlin Herbarium, Kunth's no. 2249 is labeled "Montevideo, *Humboldt* ex Sellow," but the species is not cited from Montevideo by Osten. The specimen probably came from southern Brazil.

121. E. pachystyla (C. Wright) Clarke; Svenson, Rhodora xxxix. 268 (1937).

122. E. quinquangularis Boeckl. [map 47], Cyp. Nov. i. 15 (1888); Maury, Mém. Soc. Phys. & Hist. Nat. Genève xxxi. 136, t. 41a (1889); C. B. Clarke, Bull. Herb. Boiss. ser. 2, iii. 1015 [Pl. Hassler. 237] (1903); Barros, Anales Mus. Hist. Nat. Buenos Aires xxxiv. 461, fig. 17 (1928).—Argentina: Sierra de Santa Ana, Misiones, *Niederlein* (type, Berlin); Terr. Chaco, *Joergensen* no. 2625 (G).

This local species of northeastern Argentina has been well illustrated by Maury and by Barros. It is a tall coarse plant related to *E. sulcata*, characterized by short knotted rootstocks, hardened bulbous culm-bases, and thick roots; with culms (often 1 mm. wide), channelled and flattened, much as in *E. Wolfii*. The cylindric blunt spikelets are large, becoming 12 mm. long and 4 mm. wide. The angles of the trigonous, grayish-white achenes (1.0–1.2 mm. long) vary from blunt to strongly costate, and the style-base tends to be mitriform. I believe it is the same as *E. filiculmis* (cf. Rhodora xxxix. 266 (1937)), conforming to the description by Boeckeler "rhizomate abbreviato-culmisque basi tuberascentibus," represented in hb. Berlin by *Kunth* no. 3204a (sub *E. montevidensis*), labeled "*E. filiculmis. Scirpus filiculmis* Schrad. ined. Bahia. Lhotzky legit," and by an identical specimen "*E. filiculmis?* Montevideo, rel. Sellow, *Humboldt.* Hb. Kunth 3204a." I am not absolutely certain that these specimens represent the type of *Scirpus filiculmis* and the type locality, moreover, is obscure. In view of the confusion attending the name, *E. sulcata*, it is best, for the present at least, to maintain *E. quinquangularis* as a distinct species.

E. sulcata Nees (technically a *nomen nudum* until Boeckeler's

citation in 1869–70) was based on *Scirpidium sulcatum* Nees (1842), and primarily on *Macrae's* collection in hb. Lindley from Bahia. Nees included *E. filiculmis* Kunth as a synonym. The name *Scirpus sulcatus* Roth, on the other hand, originated from a collection from eastern Brazil by *Martens* (TYPE probably at Oldenburg).[1] This name, a later homonym of *Scirpus sulcatus* Petit-Thouars, could have been taken up under *Eleocharis* by our present rules (provided no valid name had meanwhile been published), but Boeckeler (1860) had already adopted the new name *E. Rothiana.* However, several older names are probably available. It is possible that *E. emarginata* (Nees) Klotzsch,[2] based on specimens from São Paulo and Campanha (Minas Geraes), belongs here; on the other hand, *E. emarginata* perhaps represents *E. Loefgreniana.*

123. E. FILICULMIS Kunth; Svenson, RHODORA xxxix. 266 (1937).

124. E. GLAUCO-VIRENS Boeckl. (PL. 545, FIG. 6). Perennial from slender descending rootstock; culms filiform, *shining glaucous green,* 15–25 cm. high, flexuous, irregularly striate-sulcate: sheaths brown, stramineous and reddish-punctate above, the apex acuminate: spikelets ovate, 3–5 mm. long, loosely 5–12 flowered: scales not appressed (except the lowest), oblong-ovate, obtuse to emarginate, membranous, castaneous, with broad hyaline margin and punctate greenish keel: stamens 3; anthers apiculate, 0.4 mm. long: style 3-fid: achenes trigonous, *ovate-elliptic, 1.3 mm. long, iridescent greenish-white, lightly reticulate:* style-base ¼ as long as the body, broad to narrowly pyramidal with concave sides, obtuse to acute, the *margin prominent;* bristles cinnamon-brown, equalling the achene.—Cyp. Nov. i. 13 (1888).—BRAZIL: prov. Santa Catherina, *Ule* (hb. *Glaziou* no. 15686) (TYPE, Cop).

E. GLAUCO-VIRENS is related to *E. viridans* and *E. crinalis,* and as in those species the margin of the trigonous style-base is raised. The achene is considerably larger and more elongated than in *E. filiculmis* (*E. sulcata*), which has achenes 1.0 (or sometimes as little as 0.8 mm.) long.

(To be continued)

[1] Cf. Bot. Zeitung xxvi. 307 (1828).

[2] Klotzsch ex Boeckl. Linnaea xxxvi. 443 (1869–70); Palla in Usteri, Fl. São Paulo 158 (1911). *Chaetocyperus emarginatus* Nees in Martius, Fl. Bras. ii[1]. 96 (1842); Steudel, Syn. Cyp. 74 (1855).

PLANTS NEW TO MINNESOTA

Olga Lakela

Erucastrum gallicum (Willd.) O. E. Schulz[1] occurs in Duluth. This report is substantiated by the author's collections, Nos. 1683 and 1765, under the name of *Radicula obtusa* (Nutt.) Britt., which later were correctly determined by Dr. John W. Moore, University of Minnesota.

In 1911, Dr. B. L. Robinson regarded this species, then under the name of *Erucastrum Pollichii* Schimper et Spenner,[2] as so well established that it deserved to be placed on record as an adventive in America. This record was based on two collections: one from Milwaukee, Wisconsin in 1903, and the other from Sherborn, Massachusetts in 1910. Dr. Robinson's interesting statement follows: "The second station at a great distance from the first suggests that the species is likely to turn up elsewhere."

A study of herbarium specimens reveals that even at that time the species had reached North Dakota. There is a specimen in the University of Minnesota Herbarium collected by Professor O. A. Stevens at Fargo, in 1910, and another by Dr. H. F. Bergman at Grand Forks in 1912. The author's collection, No. 507 was made at Minot in 1930, a considerable distance westward from the Minnesota-Dakota state line. In each locality the plants were collected near Great Northern Railroad tracks.

Obviously the plants have been overlooked in Minnesota until 1936 when they were found on Minnesota Point, on a year-old sand-fill adjoining Oatka Beach Addition. They were common among annual pioneers, but in 1938, when perennials dominated the area, *Erucastrum* migrated to another sand-fill, a bare area, about one-half mile farther south, where it established a plant community with species of *Polygonum* and other annuals.

Dr. P. A. Rydberg in Flora of the Prairies and Plains of Central North America, p. 374, 1932, treated the species as "*Erucastrum Pollichii* Spenner," limiting its range of distribution to Mo., S. D., N. D.

Luzula nemorosa (Poll.) E. Mey. grows in dense, scattered colonies on the south-facing slope of Hunter's Hill in Duluth, in the more open places of the woods where the ground flora is dominated by

[1] Engler's Bot. Jarhb. LIV, Beibl. n. 119 (1916) 56.
[2] Rhodora, XIII: 10–12. 1911

grasses. The collections, Nos. 2492 and 2712, were made on June 26, and August 7, respectively.

This species, of a wide distribution in Europe, has been reported as an adventive in America, occurring locally in New York and Ontario. There is a specimen at the University of Minnesota from Vermont.

SAGINA PROCUMBENS L. grows in moist moss on a wooded terrace sloping to a small pond in Forest Hill Cemetery, Duluth, where the collection No. 2561 was made. The plants cover a considerable area of the terrace and are associated with *Viola pallens* and *Cerastium vulgatum*.

Many deciduous trees are planted along the walks at the terrace level, but the steep hillside above it is under native forest. In America this species is found mostly in the states of the Atlantic coast. It has been reported from Kansas. There are specimens from Louisiana in the University of Minnesota Herbarium.

VALERIANA OFFICINALIS L. has become established on wooded slopes in East Duluth. The collection, No. 2560, was made in a poplar thicket on Snively Road near Morley Park.

This commonly cultivated plant has escaped from cultivation. It is reported from N. E. to N. J. and Ohio.

ANTHEMIS TINCTORIA L. is occasional on roadsides in East Duluth. A sizable colony was found on a gravelly slope on Chester Park Hill near Kenwood, where the specimens, No. 2762, were collected. Another station was located about four miles farther east in Lester Park.

The species has been reported from Maine, N. J. and Ia.

SEDUM TELEPHIUM L. grows in vigorous clumps in several stations in East Duluth. The plants, No. 2728, were collected on the bank of Lester River at the junction of Jean Du Luth road and Snively Boulevard. Near this locality, another colony grows in alder thicket, periodically, at least, under water. In the University Herbarium, there is one collection of this species from Rock County, Minnesota.

PANICUM PHILADELPHICUM Bernh. was found on the sandy shore of Lake Comstock about thirty-four miles north of Duluth, and two miles west from Highway No. 4. In addition to the author's collection, No. 2732, there is a specimen in the University of Minnesota Herbarium from Montevideo, collected by Mr. G. S. Fellows in 1931. The author's determination of these specimens was verified by Mrs. Agnes Chase, United States National Herbarium.

STATE TEACHERS COLLEGE,
Duluth, Minnesota.

Arabis viridis var. heterophylla.—Hopkins in Rhodora **39**: 160 (1937) makes a claim that my *Arabis laevigata* var. *heterophylla* was based nomenclatorially in part upon *A. heterophylla* Nutt., hence is untenable because my plant is not the same as that of Nuttall. This claim has no foundation in fact as the specific name of Nuttall, though identical with my varietal name, had no part whatever in my choice of a name for the Michigan plant; had it in any way been the source of my varietal name I should have written "(Nutt.) n. comb." instead of the "n. var." which was used. It is true that I suggested that the Michigan plant might be the same as Nuttall's species but that is far indeed from making Nuttall's species the source in whole or in any part of the name used by me. Therefore the name *A. viridis* var. *Deamii* Hopkins, l. c. 157 is, under article 60 of the International Rules, an illegitimate name as it was superfluous when published. The correct name is

A. viridis Harger var. **heterophylla** (Farwell), n. comb. (*A. laevigata*, var. *heterophylla* Farwell Ann. Rpt. Mich. Acad. Sci. **19**: 248. 1917).—O. A. Farwell, Lake Linden, Michigan.

Valerianella, a Correction.—The citation given in my revision of *Valerianella*[1] for *V. olitoria* is incorrect.

It should read V. olitoria (L.) Poll. (*Valerianella olitoria* Poll., Hist. Pl. Palat. **1**: 30 (1776)) instead of *V. olitoria* (L.) Dufr. as there stated.—Sarah C. Dyal.

[1] Rhodora **40**: 190 (1938).

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